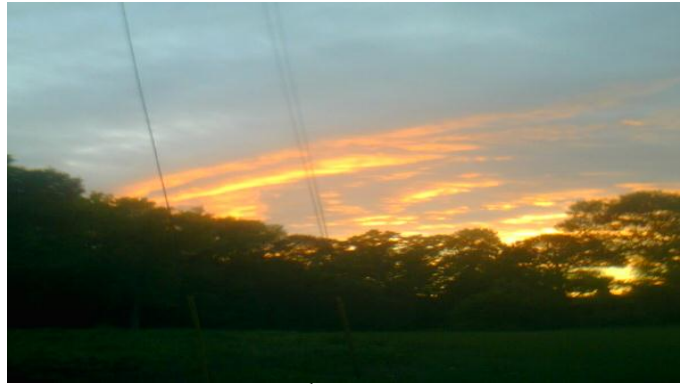


**Small Area Plan for “DeKalb County’s
NE Expressway’s Wetland Reserve and Green Corridor”**



N.E. Expressway 3rd Wetland Area



North Fork of Peachtree Creek



Henderson Mill Creek meets North Fork Peachtree Creek

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Small Area Plan for “DeKalb County’s NE Expressway’s Wetland Reserve and Green Corridor”

Introduction

Stream and River Restoration

Today the design and construction business has implanted a demand for a new market, returning altered waterways to a more natural condition; undoing the harm and damage that have accumulated with years of over and misuse to our rivers and streams.

During the seventies, a different paradigm managed our waterways, the building of stream banks made of cement and rock, the altering of structure in the channels was meant to control the flow and sediment levels, with little regret to the damage the eco-system received.

These new changes in techniques are due to the high demand of the economic returns that our water resources are gaining for our communities. According to the National River Restoration Science Synthesis over one billion dollars is the annual cost to restore our eco-systems, however the damage often is so extensive, there is no restoring the eco-system back to its original condition. This gives to the process being more of a rehabilitation practice, moving it closer to its natural movement (Landers, 2010).

At the Federal level, the NRCS is continually working towards channel stabilization and wetland restoration. It provides funding and technical design assistance for private properties. It has produced manuals such as ‘Stream Restoration Design Handbook’, Stream Restoration Planning and Design: Fluvial System Stabilization and Restoration: Field Guide. Other agencies engaged in efforts are the U.S. Forest Service, which oversees 193 million acres covering 200,000 miles of streams and rivers (Landers, 2010).

Wetlands should be preserved and recognized, as a valuable resource assuring a balance in the environment. These wet sponge areas function in multiple ways for a variety of creatures, man included. They are home to many fish and wildlife, while improving and protecting our water quality, functioning as storage for floodwaters, and maintaining the surface water, especially during dry periods.

Rivers and streams flow naturally and along them are mini ecosystems, in which many plants and animals rely upon. However, these natural flow regimes are being altered, destroyed, and polluted, thereby changing the use of the rivers, streams and creeks that are responsible for the transportation of waste disposal, hydroelectricity, intensive agriculture demand, flood-control projects, and so many other human activities. Only two percent of our rivers remain in a natural state here in the U.S. The natural functions have almost disappeared, largely due to man’s need to control flooding. As a result, many species have disappeared, or relocated, causing the closure of fisheries, depletion of

ground water sources and declines in the quality of the water and its availability(E. P. Agency, (2001).

Natural disturbances to the eco-system occur regularly, with little room for adaptability, some of these natural causes are fires, floods, droughts, storms, herbivore and disease outbreaks. However, these disturbances are vital to the maintenance of a healthy and productive ecosystem i.e. many plants and animals contribute to producing clean air and water by allowing nutrient cycling to occur(Davis, 2001).

These wondrous areas, once thought as waste lands, are only now being appreciated; almost too late, as they are disappearing, leaving our surface water and groundwater sources to evaporate. Groundwater withdrawals have increased by 46%, while forty-two percent of the nation's stream length are found in poor biological condition, leaving 40% of the freshwater fish to become vulnerable, threatened or endangered (U.S. Environmental Protection Agency, 2011). The U.S. Environmental Protection Agency estimates that there were approximately 39.8 million acres of wetlands found within the coastal watersheds in 2004; this measures a net loss of 361,000 acres lost between 1998 and 2004 that equals an average loss of approximately 59,000 acres over that 6-year period. Those exhibiting the greatest loss are found in the Gulf of Mexico, which is six times higher than the rate of fresh-water wetland loss along the Atlantic coast, while there was a net gain of 24,650 acres in the Great Lakes coastal watershed.(Stedman, 2008).

These magnificent places are home to a wide variety of bird species, who live within the area year-round, while others use the wetland areas along their migration route, when traveling between their winter and summer grounds

BACKGROUND

Project site: The DeKalb County Green Corridor contains the Henderson Mill Creek (HMC) and the North Fork of the Peachtree Creek, a tributary of the Chattahoochee River, in Georgia. HMC is a stream runoff, and flows westward into the University Business Park area where it channels through a shrub-swamp area up to Woodcock Boulevard (south of Chamblee Tucker Rd) and meanders over to the North fork of the Peachtree Creek, which feeds the N.E. Expressway Wetland in addition to a variety of neighborhood retention ponds. Once Peachtree Creek leaves our site it continues south across Shallowford Rd. toward Druid Hills, still east of the interstate. The site is contained in Unincorporated DeKalb County, which is assigned to the City of Chamblee - DeKalb County, Georgia

Being a resident of this area, familiarity with the landscape, the school district and side-affects of living near highways allows me to provide a more in-depth description of the area, without referring to specific maps. However, maps are available in the paper assuring the reader becomes familiar with the Green Corridor found south of the Chamblee-Tucker Road, located in DeKalb County, GA.

The brown colored marsh area (in picture below) is bordered on the west and northwest by commercial buildings and their parking lots, directly north of it lies an office park, which also contain ample parking lots while the Interstate 85 access road (NE Expressway) is found directly west of this swamp habitat. The Embry Hills and Flair Knoll Forest neighborhood are to the south and north west of it, the Embry Hills Club Lake is visible in the picture as it sits southeast to the our wetland wonderland. Numerous retention ponds are located within the neighborhoods as well.



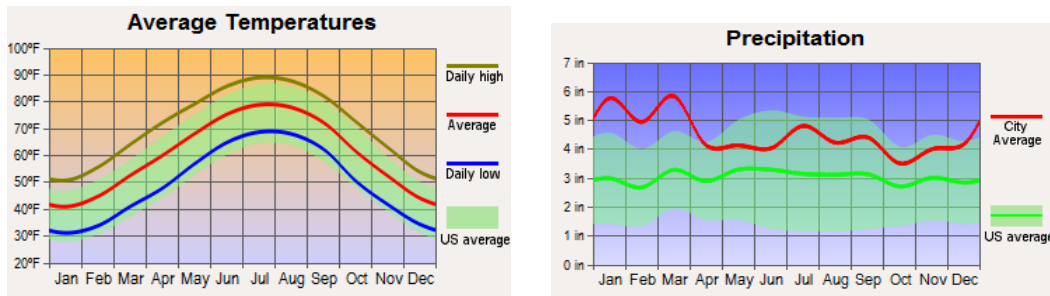
(Images, 2012)

Region

The Atlanta Regional Commission Development Plan (RDP) provides incentives and grants to localities that are interested in protecting the character and integrity of existing neighborhoods, while meeting the communities needs; promoting greenspace and neighborhood parks at the pedestrian scale; increase connectivity and accessibility to greenspace(DeKalb County, 20009) .

ARC also offers design guidelines that address areas of landscaping that provide connectivity with features for bicycle and pedestrian amenities, in addition to enlisting crime prevention and safety features built into the design. As the design of the place ultimately affects the way, it is used (Atlanta Regional Commission, 2011b)

Temperature - The city of Chamblee reports the average temperatures peak during July the average is in the 90's but is low during the months of November through March. The precipitation peaks during the months of January through March with humidity increasing from June to September. The months of January through March also are noted for high winds while sunshine is quite common during the months from March through June and again in October and November. Cloud cover is common all year around (City-Data.com, 2011).



(City-Data.com, 2012)

Transportation – The federal government’s transportation planning policy, SAFETEA-LU lists out 8 factors that our region must consider, the ARC Regional 2040 plan encompasses these factors; this paper addresses the use of three of these factors. Increase the safety of the transportation system for motorized and non-motorized users and Increase the security of the transportation system for motorized and non-motorized users (the key here is non-motorized users). In addition, protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements, State, local planned growth, and economic development patterns (the key here is enhancing the environment and improve the quality of life) (Commission, June 22, 2011.).

District

This community is Congressional district 06 and 04; served by Representative Scott Holcolmb (D), Representative Fran Millar (R), Senators Johnny Isakson (R) and Saxby Chambliss (R). The annual tax-base for 2010 was \$745, 243,000 (NeighborhoodLink, 2011). District 4 is represented by Commissioner Sharon Barnes-Sutton (DeKalb County, 2011a); and District 6 is represented by Kathie Gannon (Gannon, 2011).

DEKALB COUNTY STATICS AND INFORMATION

30341 zip code - The area’s population is multicultural in nature. Per the Census Bureau, and school district websites, this area is quite diverse in both economics as well as culturally. The average home value is at \$186,000, a bit higher for this metro area, and isn’t considered a bargain area(NeighborhoodLink, 2011).

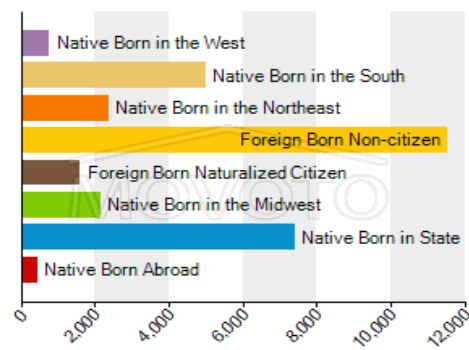
Population: The U.S. Census Bureau, zip code area 30341 has approximately 31,000 residents; with 12,000 housing units of which 5,000 are owners with 6,500 renters. Of this amount 17,000 reported to be white, 3,000 Black, 4,000 of Asian descent, 10,000 of Hispanic influence, and 1,000 not declared(Bureau, 2009).

Per Movoto’s Neighborhood Search, the amount of native Southerners living in our area is around 5,000 from other southern states and approximately 7,500 are natives. The cultural base is influenced with emigrants from other states, 5,000 (est.) and 13,000 immigrants from different countries around the world (Neighborhood Search, 2011).

Owner vs Renter Occupancy



Citizenships by Birthplace



(Neighborhood Search, 2011)

The median income reported in 1999 was \$50,349, with over 5,000 residents reportedly found under the poverty level. Approximately, 5,904 residents have a Bachelors, while 2,711 are found with a Graduate degree(Neighborhood Search, 2011); the average household is made up of 2.68 residents with 19,178 of them actively in the workforce.

The median household income of those owning houses or condos with a mortgage is \$83,333; those paying a mortgage on an apartment \$57,604 (City-Data.com, 2011).

<i>White</i>	<i>Black</i>	<i>Asian</i>	<i>Hispanic</i>	<i>Undeclared</i>
17,000	3,000	4,000	10,000	1,000
			Median Income	\$50,349
Under 5 years	2,060		BA/BS	5,904*
Under 18years	24,982		MA/MS	2,771*
Over 65 years	2,538		In workforce	19,178

(Finder, 2012), (Movoto.com, 2012)

School District - Within the defined area located in DeKalb County, the schools are strategically located in areas near the children's neighborhoods, yet many of those communities lack a clear passageway for children to walk or bike ride to school from their homes; the communities have many cul-de-sacs, especially those within or boundaries. School bus transportation is a provision for all children within one mile of their local school, which is a large expense for the school district. To combat the high expense of gasoline, and combat the remittance of emissions, DeKalb County is slowly replacing their busses with low emission vehicles (LEV); thus far, they own sixty-five and plan to purchase an additional 500 over the next ten years (DCSS, 2011).

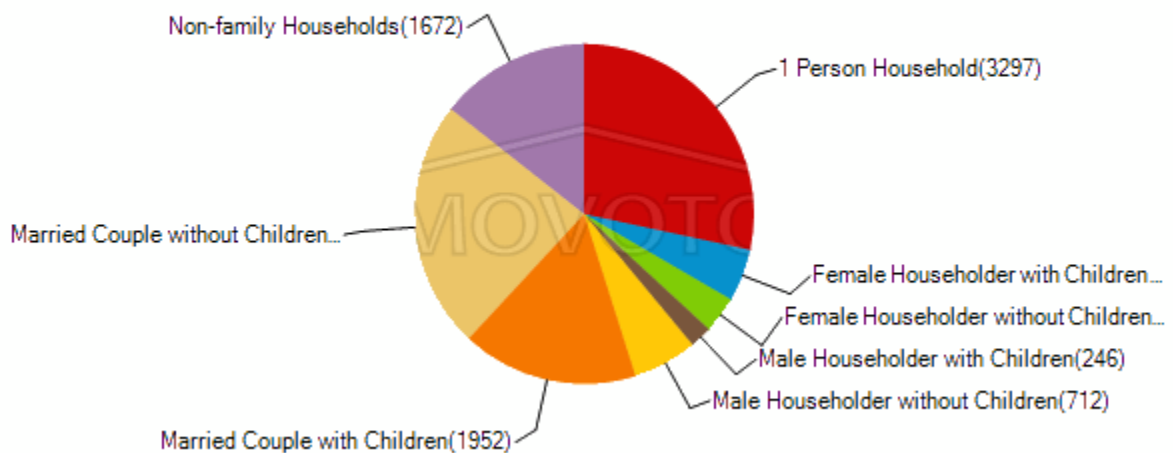
Children within this community attend Hawthorne Elementary, Henderson Middle and Lakeside High schools. Also found in this same community are two colleges; a small satellite of Syracuse University and the Atlanta campus at Mercer University. This

school district resonates with education; as two private schools are near-by as well, but out of our designed site. The tax-base in this neighborhood is closely associated with education, and government.

DeKalb County spends \$10,620 per pupil in current expenditures. This district spends 61% on instruction, 35% on support services, and 4% on other elementary and secondary expenditures. Hawthorne Elementary, which hosts 420 children, is located on Caladium Drive inside Forest Knolls neighborhood. The distance from our site turns into a 2.1-mile trek, despite being within a mile radius. Henderson Middle, with 465 students is approximately 3.8 miles from the neighborhood site and Lakeside High is 2.1 miles away (Bureau, 2009).

Those homes found in our area without children totals less than 5,000 persons, designating this community as child oriented, thus children's health issues should be of high concern with this population(Neighborhood Search, 2011).

Household Type by Children Presence



(Neighborhood Search, 2011; NeighborhoodLink, 2011)

Transportation - The average number of registered vehicles per household in the metropolitan area for 2011 was 2.04. In DeKalb County alone, 383,355 automobiles; 54,964 trucks; 23,777 trailers; and 6,662 motorcycles, reside here, totaling 471,200 vehicles (Division, 2011). In addition, MARTA has four major bus routes found in the area, two of these are found running along Chamblee-Tucker Road and Shallowford Road.(Authority, 2009).

Local Issues – Per the 2040 Plan that the Atlanta Regional Commission put out for DeKalb County there is mention of the links between planning and health and how these particular topics relate to the quality of life and how it relates to development and transportation. The City of Chamblee bought into the idea of Transit Oriented Developments (TOD) by creating new zoning ordinances and supports density, however

they felt let down by MARTA's lack of guidance but have addressed the MARTA stations as key priority areas (Atlanta Regional Commission, 2011a). The MARTA Doraville and Chamblee stations service this area.

In April 2010 the Briarcliff met with DeKalb County Watershed and DeKalb Soil & Water Conservation representatives near North Fork Peachtree Creek where it crosses Shallowford Road to talk about flooding and erosion problems. The pictures below reflect their concern.

Issues of concern were expressed at the Re-Imaging Shallowford Charrette held by DeKalb County back in 2011, these were the neighborhoods were not pedestrian/bike friendly; there was a lack of code enforcement; few neighborhood stores, many cultural differences; lack of communication; and traffic choke points.

All of which can transpire if an LCI plan was implemented. The foundation has already been set, the County planners just need to empower the community into action. This paper hopes to bring to light the importance this Green Corridor has to this community; it's a little tad of Heaven with all the wild creatures and beautiful foliage surrounding you. Learn to appreciate it, by being civic-minded and responsible for it's upkeep.



NEIGHBORHOOD

Housing Stock - The majority of the housing in this area has a built date of the late 50's and early 60's, with another development occurring in the 90's, which became an infill enhancement. The majorities of the homes are large and have 4 to 6 rooms, with approximately 2,100 having seven to eight rooms; and over 4,000 have 2 or more bedrooms(Neighborhood Search, 2011).

Both neighborhoods are single-family home subdivisions, while multifamily housing is located along the west bank (along I-85) of the corridor, between Shallowford Road and Chamblee-Tucker Road. The multifamily housing complexes known as Georgetown of Atlanta (private-residences), Bradford Square Condos and Century Peachtree Creek Luxury Apartments sit along the expressway and along Shallowford Rd, while behind them sit the two subdivision communities Embry Hills and Flair Knoll Forest; all the children in this community as well as other adjacent areas attend the same schools(Neighborhood Search, 2011).

Crime - The crime index continues to decrease; from 14,000 in 1998 to approximately 7,000 in 2010. During the last year in Chamblee, 115 violent crimes occurred, with 831 resulting in property damage; one in 97 residents will be victims of violent crime in this area. Those violent crimes during 2011 involved 2 murders, 1 rape, 18 assaults and 94 robberies (Scout, 2011). As the crime rate decreased, communities diversified and the change in demographic characteristics weakened the rate significantly. The association between crime and community characteristics—like the proportion of the population that is black, Hispanic, poor, or foreign-born—diminished considerably over time (Kneebone, 2011).

Roadway Mileage for DeKalb County is quite high amongst the other counties located in the MSA area, it totals 1845.06 miles. Riddling the area with high stormwater issues due to roadway runoff (G. D. o. Transportation, 2010).

Road Frontage The site is adjacent to the N.E. Expressway along Interstate 85. The creek crosses under Shallowford Rd along Publix's parking lot. has approximately 2,290 +/- feet of frontage along Interstate 285 and Motors Industrial Way. The property also has frontage on Peachtree Road.

Parks: The location of the Mary Scott Nature Preserve is at the end of our site, where a 10.6 acre wooded tract is located (4150 Briarcliff Road). It was acquired in 2003, with funds from DeKalb County Bond Program, Georgia Greenspace Program, & Arthur M. Blank Family Foundation (Park, 2012).

Zoning: DeKalb County has recently revamped their zoning to include a traditional neighborhood, office park and commercial redevelopment corridor (all of which is included on this site):

<u>Traditional Neighborhood (TN)</u>	NS; C-1; O-I; R-200; R-150; R-30,000, R-20,000, R-100; R-85; R-75; R-60; R-A5; R-50; R-A8; R-DT; RM-150; RM-100 and PCD	
<u>Office Park (OP)</u>	NS; C-1; O-I; C-2; OIT; OCR; OD; PCD; and RMHD	
<u>Commercial Redevelopment Corridor (CRC)</u>	C-1; O-I; C-2; OIT; OCR; OD; R-200; R-150; R-30,000; R-20,000; R-100; R-85; R-75; R-60; RA5; R50; R-A8; R-DT; RM-150; RM-100; RM-85; RM-75; and PCD	

(DeKalb County)

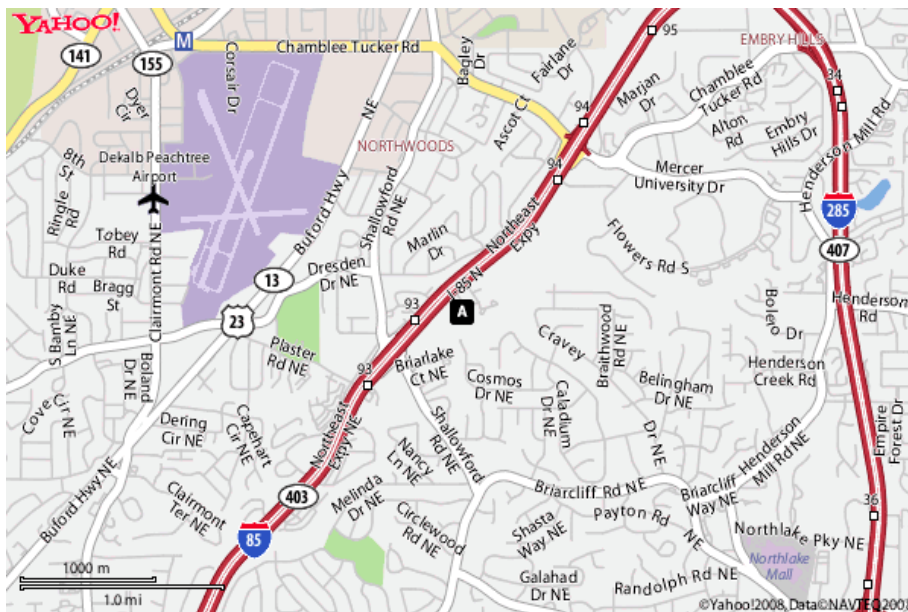
The City of Chamblee has similar zoning codes; this area is under the service of the City.

CHARACTER AREAS	COMPATIBLE ZONING DISTRICTS
Corridor Village	CR, CC, VC, NC-1, NC-2, I
Historic City Core	VC
International Village	VR, CR, VC, CC, I
Mid-City	VC
Neighborhood Compatible Commercial	NC-1, NC-2
Neighborhood Living	NR-1, NR-2
Residential Row	CR, VR

(Chamblee, 2006)

Recent zoning changes were submitted and denied for the property located southwest of Briarwood Rd. (Georgia Power easement) from M (Biomass Renewable Energy Facility) from Light Industrial) to M-2 (Industrial). The change would allow the construction of a utility generation facility. The site is approximately 880 feet northwest of Interstate 85 (vacant land), with 150 feet of frontage on Briarwood Road (3.16 acres) (*ZONING AGENDA / MINUTES*, 2010).

Neighborhood Traffic Management

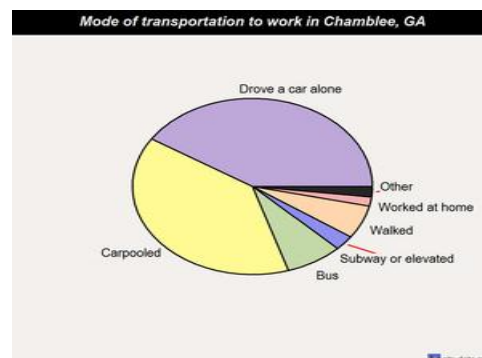
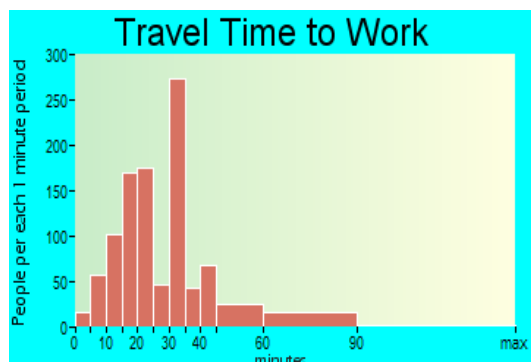


(moving, 2011)

Notice the road map above. There are no continuous streets within the triangular area. The Expressway (runs north and south on the western border), Shallowford Rd to Briarcliff Rd NE (southern border of the triangle) around to Henderson Mill Road NE, (east then north border) leading to the top of the triangle and two roads up north, Mercer University Drive and Chamblee Tucker Rd that lead back westward to the N.E.

Expressway (moving, 2011). Yet, Hawthorne Elementary is located above Briarcliff Rd (Cadium Dr. NE), with no pedestrian passageway to the school, unless you live in the Forest Knoll neighborhood. Henderson Middle School has no access to it from the N.E. Expressway, except along Briarcliff Rd to Henderson Mill Rd or up north along Chamblee-Tucker Rd and then south along Henderson Mill Rd. Getting to Lakeside High school takes you out of this area and is located better for bike riders or pedestrians.

Over 250 residents travel approximately 30 to 45 minutes to their job, with 300 traveling anywhere from 15 to 25 minutes. Despite having a MARTA train station and buses, the resident's most common mode of transportation is still the automobile, 41% drove, while 39% carpooled, and 11% commuted via mass transportation (City-Data.com, 2011).



(City-Data.com, 2012)

Traffic - Interstate 285 and I-85 Perimeter area is already one of the most traveled corridors, serving over 250,000 vehicles per day; motorists experience high levels of traffic congestion especially during peak hours of travel. Congestion within this area is to increase up to 42% within the next few years (G. D. o. Transportation, 2011).

The amount of traffic on I-85 at Chamblee Tucker, Northbound on an average day (Saturday, Feb. 18, 2012) has a low volume of 936 vehicles at 6:00 a.m. but raises to 3,608 vehicles at 10:00 a.m., it reaches 6,647 vehicles by 5:00 p.m. and by midnight decreases to 3,702 vehicles. This reflects a high concentration of air pollutants for this area, during a weekend. The figures increase during a workweek (2/17/2012); they rise as high as 9,723 at 5:00 p.m. and as low as 661 at 4:00 a.m. north bound. Southbound, the figures are higher in the morning hours; the lowest rate is at 3:00a.m. with 445 vehicles and the highest found at 8:00 a.m. at 10,531 vehicles (G. D. o. Transportation, 2012).

Traffic Accidents – The City of Chamblee reports 50 fatal accidents, with 76 vehicles being involved, twenty of which involved alcohol, and 57 resulted in deaths. One hundred and twenty pedestrians were involved while 17 of them involved pedestrians (City-Data.com, 2011).

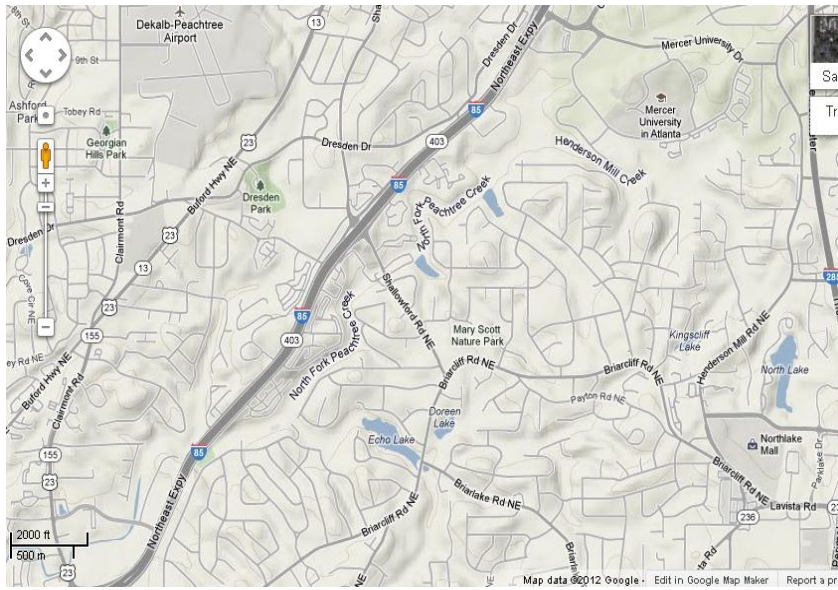
Air-Quality - The Air Quality Index level for 2010 reports the air in the 30341 corridor to be average at 38.1 while the U.S. standard level was 32.1. However, the Particulate

Matter (PM 2.5) was 11.7, (PM10) was 20.3 and the while the U.S. standards were close in proximity at 9.6 and 22.1 (this is worse for PM 2.5 than previous years). The Nitrogen Dioxide level was 9.89 with the U.S. standard was 9.39; Sulfur Dioxide was better than average at 1.67 with the U.S. at 2.43 and Lead was measured at 0.00296 with U.S. level at .006353 (City-Data.com, 2011).

Assessor's Parcel Numbers

Currently this information is not available to this author.

Topography/Parcel Map



(Topography & GIS map not available to this author)

Utilities and Entitlements

Stormwater Utility - DeKalb County in 2004 passed a stormwater utility fee, which bases the charge for developed properties on their contribution to the stormwater runoff. The basis of this fee is on an equivalent residential unit (ERU) which presents a basis for measuring the amount of runoff generated by a parcel's impervious coverage, which has been determined to be 3000 square feet of impervious area per single detached dwelling lot.

A defined impervious surface is an area that prevents or impedes the infiltration of the stormwater into the soil, as it enters under the natural condition, prior to any development. This includes rooftops, cemented areas such as sidewalks, driveways, patio areas, and parking lots; in addition to compacted gravel, soil surfaces and plastic covered areas, such as awnings and storage areas. The standard fee is \$4.00 per month per an

equivalent residential unit (ERU); charges for all other developed portions are centered on the 3000 square foot of impervious surface found on the property.

Property owners are encouraged to obtain on-site services that function to collect or recycle the storm water. A ten-percent credit is given if the services technically meet design and performance standards contained in the Georgia Stormwater Management Manual(P. W. Dekalb County, 2012)

Electrical Utility- Georgia Transmission serves all Georgia residents with electricity. Their mission states they attempt to avoid or minimize impacts in high priority areas with little silting and construction disturbances. They develop plans to avoid these impacts and work with the local and state regulating agencies. GT contacts property owners for permission to survey their property and to cut or trim trees that will assist them with, establishing a line of sight; or to take soil borings determining subsurface characteristics. Survey information is vital when establishing boundaries and assessing market value of the property, and possible easements. When negotiating purchases for land and easements, the survey figures are quoted (Transmission, 2012).

Land characteristics are evaluated to determine the Rights of Way width, the size of the line, type of structure, however line widths can vary; most range from 25 to 42.5 feet for roadside sites and anywhere from 100 to 150 feet for cross-country lines.

Our site has transmission lines, underground wiring and sewers coplets located along the creek and some of the properties.



Transmission line @ Georgetown, electricity @ UnivBusinessPark, Sewer along Ptree creek

A typical transmission line's structure height is 115k for a line; a single pole is 80-120 feet high alongside a road, cross-country they are in position at 60 to 80 feet. The average easement width for a 115k Line Single Pole is ± 100 feet cross-country and 25-42.5 feet for roadside areas.

The majority of the right away is useable by the owners pending the minimum clearance from poles and guy wire maintenance. Areas such as recreational fields, parking lots and drainage ditches are issued written agreements; this includes sewer, water, gas, telephone, and cable companies who have the authorization, but most apply for their own easement territory (Transmission, 2012).

NORTH FORK PEACHTREE CREEK

Buffer zone -The north fork of Peachtree creek has a variety of buffer zone sizes, just within this Small Area Plan. Past Shallowford Rd: The creek's west bank buffer zone is approximately 50 feet while at Shallowford Road, along the Publix strip mall the buffer zone is less than 25 feet and most of that is in height not width of the embankment, this is the only visible portion of the creek using satellite mapping.

North of Shallowford Road the buffer zone for the west bank reaches up to 200 feet in width, and continues past the Century Peachtree Creek apartment complex. While the east bank is approximately 50 feet wide at Shallowford Road, it lessens its width as it progresses northward, and is less than 25 feet midway thru the Bradford Complex. This is quickly resolved as the creek travels northwest and is well over 50 feet in width when it reaches Georgetown Condominiums(Google, 2012).



Bufferzone at Georgetown of Atlanta

Flood Plain -Per the municipal, code of Chamblee, any proposed development must have a step-backwater analysis (a FEMA-approve methodology), that reflects the flood-plain calculations presently and for the future-conditions' storage capacity; the development must not diminish any storage capacity. The analysis must provide a preliminary plat, grading plan or site plan, defining the future conditions of flood plain encroachments.

The development must not encroach the floodway including earthen fill, new construction, substantial improvements except for specific activities for bridges, culverts, roadways and utilities within the regulatory floodway that demonstrate hydrologic and hydraulic analyses to substantiate any increase to the pre-project base flood elevations, floodway elevations, or floodway widths during the base flood discharge.

Maintenance is the responsibility of the property owner; at no time is the storage capacity to be diminished; however, the city/county may direct the owner to restore the flood storage capacity of the floodplain.

Land Lot(s): See zoning

Net Site Area: 100+ Acres

Commercial Development

Office space The University Office park centers itself at the meeting of the North fork of Peachtree Creek and the Henderson Mill creek. This office park is often a victim of the flooding problems, after the 2009's 500 year flood, they rebuilt many of their culverts, allowing the storm water easier access into the habitat; however this could result in placing too much water, too quickly into the wetland and thus the creek. Resulting in allowing the water to wreak havoc on the banks of the creek (erosion and siltation).



Despite the Office Park, replacing some drains and adding new culverts, the accumulation of leaves and foliage get caught up in them. There is little maintenance upkeep, it seems culverts traditionally receive less attention than other visible infrastructure; largely due to the limited visibility of them especially when they are working properly.



Pictures taken at University Business Park Fall 2010 by MKM

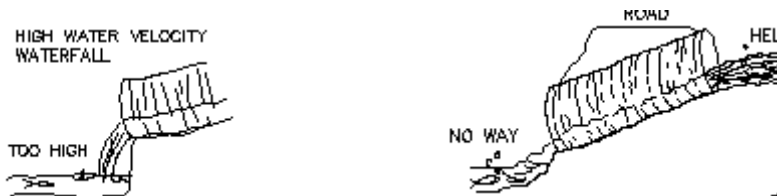
Culverts are an integral part of the storm water system for cities & counties, especially when strategically placed. Culverts input along road ditch turnouts, help to maintain a stable velocity along with proper flow capacity, allowing the strategy of outleting to be set in a timely manner. This lengthens the life of roadway ditches, keeping the sub-base dry and thereby alleviating flood conditions, specifically during hard rain periods. Moreover decreasing the erosion and reducing the amount of maintenance problems.

There are two functional types of culverts: Stream Crossing and Runoff Management. Stream Crossing culverts are input when a roadway crosses a stream channel, allowing water to continue downstream. Runoff Management culverts, also known as cross-drains, manage the runoff route from roadways. They transport upland runoff that has

accumulated in the ditches away from the road; it moves it along or the roadway (O. D. o. Transportation, 2009). This site has both found within its boundaries, due to the amount of development, Interstate 85, the number of parking lots and the N.E. Expressway.

Inspections of the culverts and drains found within the office park, the movie theater and the commercial development should be completed per suggested maintenance guidelines; during spring, autumn, and after storm events, assuring they have no signs of corrosion, joint separation, bottom sag, pipe blockage, fill settling, sinkholes, and any sediment buildup.

Included in the inspection should be the inlet and outlet channels as debris can block the channel, divert the flow, cause erosion problems and increase chances of flooding. When a culvert is plugged with sediment a high-pressure water hose located at the outlet end can easily clear it; resulting in reducing downstream sedimentation(E. P. Agency, 2012)



Clogging problems are ordinarily a design problem; those found within the business complex are not at a lateral angle but slanted more than 45 degrees, allowing the runoff to gain speed into the natural area. Some areas move the water through grass but the majority transports the runoff to exposed soil introducing stormwater into the system, causing clogging problems. Therefore, a mandatory maintenance plan is necessary (Association, 2011).

Drains



Pictures taken at Univeristy Office Park by MKM while walking Grace, Fall 2010

There are wide varieties of drains used, in this Small Area Plan, due to the various types of development around the Green Corridor.

Mercer University: information to be input later.

THE GREEN CORRIDOR

The Green Corridor of DeKalb County consists of the 3-part wetland along the N.E. Expressway and the two creeks, Henderson Mill and the North fork of Peachtree.

The N.E. Expressway wetland is an area where plants and animals live amid standing water or saturated soils. Many refer to this wetland, amongst many others as a swamp, slough, marsh, bog, fen or even a wet meadow. The variety of names provides us insight into the assortment of unique characteristics that are on hand in wetland areas. Wetlands serve as important regulators of the environment by filtering sediment and organic waste from runoff, thereby lessening the impacts of floods or droughts (Blank Park Zoo, 2011).

The N.E. Expressway Wetland area is considered a Hub along this Green-Corridor, it anchors and supports the N. fork of the Peachtree Creek and Henderson Mill Creek by giving back different origins and destinations for all its wildlife, ecologically cleaning-up a large amount of pollution, while taking in the high flow of storm water, absorbing some and emitting the remainder (B. P. (2011). Zoo, 2011).

This amazing natural eco-system hosts a wide variety of animals that migrate here from across the U.S. and Canada. Everyday different birds appear otters, turtles, frogs and lizards surface as you sit still and become a part of the landscape. This area gives more than it receives, to all those who visit it.

Unfortunately, the heavy rainfalls bring large quantities of trash and debris, as this Green Corridor runs directly through a multitude of urban environments. The debris commonly found within the wetland and creek areas are automobile tires, plastic bottles, small mattresses and aluminum cans. Another contaminant is sediment, Georgia clay is known to erode easily under water allowing it to be carried on down the stream, it then hardens during dry conditions, allowing the speed of the flow of the storm water runoff to increase resulting in making it difficult for plants to survive. During post rainy days, algae coats the surface with a green scum; banks and beds are eroding and sediment is filling the channel, choking off the wetland and stream life (Kane, 2011).



Pictures taken March 2011 at North fork Peachtree Creek by MKM

Restoring this Hub, its neighboring links and the surrounding corridor would ensure an improvement to the watershed, and well-being of the wild-life habitants that reside here as well as the neighborhood and its residents (Gardens, 2002).

Define the planning area & sub areas

North Fork Peachtree Creek - At base flow stage, the creek has an average of 568 gallons of water flowing each second or otherwise known as, 76 cubic ft per second. Per a

USGS, report for April 7, 2001 the gage height of Peachtree creek was 2.86 and 70 ft³/s, which is post multiple rain days, yet one day later the height was found to be 2.77 and 61 ft³/s.

The average gage height, measures 17 feet during a high flood period and the average base flow during dry periods runs approximately about 3 feet, whereas the stream flow is almost 150 times greater (about 5,750 cubic feet per second (ft³/s)(McCallum, 2001).

Housing - Housing construction in 2007 was at a high with infill-zoning taking place, one-hundred and one (101) building permits were issued; however due to the economic downturn; only two permits were issued in 2010, with none in 2009. The estimate for median house/condo value in the Chamblee area is \$236,907 with the median rent at \$909. The population density measures are 3,561 per square mile. The household size of the average family varies widely from two to seven persons (City-Data.com, 2011).

Air Pollution – The Air Quality Index for Chamblee falls below the U.S. standard, largely due to the high traffic volume of the Perimeter region hosting both I-285 and I-85 as well as major thoroughfares such as Chamblee-Tucker, Shallowford Rd and Henderson Mill Rd. In 2010 it was 38.1 with the U.S. level at 32.0; the particulate matter (PM_{2.5})[u/m³] is found to be at 11.7 with the U.S. level at 9.6. The city carried less sulfur in the air then the U.S. standard; in 2010, it was at 1.67 with U.S. levels at 2.43 ppb (City-Data.com, 2011).

Industry – The type of industry most commonly found in this area are professional in nature, largely due to the University Business office park found at the heart of the wetland area. The larger businesses within the office park are Center of Disease Control and the Internal Revenue Service. Mercer University is found just east of the office park.

Small service businesses are found littered along Henderson Mill Road, Chamblee Tucker Rd., Briarcliff Rd., Shallowford Rd. and Chamblee-Tucker Rd.; a small Publix grocery store is found across Shallowford Rd, within a small retail strip mall; three gas/convenient store stations are found within this area, two on Shallowford and one on Chamblee-Tucker Rd. The service industry is present, as well, with auto fix-it shops, a small auto sales lot and small restaurants, some found in the small Publix strip mall. .

Along the N.E. Expressway, access road are two main business', the Regal 24 movie theater which has 3 large parking lots and a janitorial supply warehouse, with one parking lot; two small business', an insurance agent and a headstone merchant. Entry to both multi-family housing complexes is only accessible from the N.E. Expressway; Georgetown of Atlanta (119 units) and Century Peachtree Creek Apartments.

This Capstone paper will provide evidence the Creek and wetland area are not only in need of immediate attention, but if revived can give back to the community two-fold. It is in need of a mandatory maintenance plan both by the County and by neighborhood organizations. If properly kept an enhancement with minor additions to this Green Corridor could result in a multitude of positive things for the habitat and those who live

within its boundaries. Items such as lowering District 4's school-system transportation costs, improving the health of the neighbors within the 30341 zip code area both mentally and physically, and the assurance the biodiversity of animals continues at this precious and resourceful site.

Defining the N.E. Expressway Green Corridor

This paper brings notice to the N.E. Expressway Wetland preserve and hopes to promote the site assuring it becomes a "Protected Environment". It is in need of extensive cleanup and the wildlife habitat needs better caring from the neighborhoods, it supplements.

This parcel of land not only serves the human population within its area and watershed, but a wide variety of animals found within the eco-system of the wetland and creek.

Wildlife - Birds such as the Red-bellied Woodpecker, the Swainson, Kentucky and Prothonotary Warblers, the American Redstart, the Louisiana Water thrush, Canadian wild geese and occasionally a Wood stork from Florida will stop in at the wetland area, as this waterway serves the migratory bird species. Water animals such as the river otter (*Lutra canadensis*), muskrats, box turtles, Northern Cricket frogs, Fowler's Toads, the North American Toad, garden snakes, and the Green Anole lizard are common residents within this site.



http://en.wikipedia.org/wiki/Louisiana_Waterthrush, http://en.wikipedia.org/wiki/Wood_Stork, http://en.wikipedia.org/wiki/Red-bellied_Woodpecker

Muskrats are quite common around the wetland parcel as well, and can be found in the backyards or trash bins of the neighbors, late at night, their existence in the marsh area is vital as they keep aggressive plants in check (except for the Kudzu). Many animal species use this parcel as a migration or reproduction area. Other wild-life have made this forested area their home, such as wolves and deer (Gardens, 2005).

This parcel is vital to the area when it accepts water during rainstorms, as the wetland holds the runoff; the vegetative matter absorbs the water, and then slowly releases it back into the creek, helping to feed fish in the



river, in addition to cleaning up our non-point source pollution, naturally.

Plant life found on this parcel is vital to the green-infrastructure, emergent plants are firmly rooted to the bottom of the wetland with their stalks rising above the water surface, and their purpose is to slowdown the flow of the water resulting in a counter balance to the erosive forces caused to the soil as the water moves over it.

This parcel is vital to the well-being of many lives as it cleans the water by filtering out sedimentation, breaking down harmful chemicals and decomposing the vegetative matter that resides within it. This particular parcel is most likely more productive in one day than any other parcel within 50 miles or more is in a year. It provides an inter-connect function between man and Mother Nature (Gardens, 2005).

Currently, due to the way we live our lives, the biggest threat to our precious water resource, is non-point source pollution. Runoff from sidewalks, lawns, streets, automobiles, and buildings spills into our streams and rivers, contaminating them with chemicals, pesticides, toxic metals, sediment, nutrients and bacteria. Past development lacked planning for proper land use, which can have a significant impact to our water systems. During dry periods, this parcel dries up, as the removal of the water serves other portions of the city, harming the habitat, disallowing aquatic support to its habitants (Dysart, 2001).



Pictures taken in late September and early October 2012 by MKM

Georgia clay a primary non-point source pollutant that erodes easily under water and then it hardens in dry conditions, increasing the speed of the flow of storm water runoff, making it difficult for plants to survive. During different times of the years, post rainy days, algae has coated the surface with a green scum; banks and beds are eroding and sediment is filling the channel, choking off the wetland and stream life (Dysart, 2001).



Pictures of North Fork Peachtree Creek taken in 2011 by MKM

A neighborhood group could be assigned the cleanup and visually keep an eye on any future debris that gathers along the stream. In lieu of their labor, the community will gain another viable piece to the North Fork Peachtree Creek, a natural and beautiful habitat to many different species, both from the neighborhood and beyond its borders.

Advanced and up to date techniques can be implemented that would address and deter the large amount of sediment carried along with rushing storm water, in addition to other chemical imbalances that occur during high and extremely low flows of the Creek. Caring and keeping our water clean is less costly and better than treating it with chemicals afterwards (Law, 2005). Channelization activities play a significant role in non-source pollution by increasing the delivery of pollutants into the creek/stream, including sediment. It can cause higher flows during rainstorms, and in doing so increase the risk of flooding (United States Environmental Protection Agency, 2006)

Best Management Practices (BMPs) for Stream Channelization include stream bank protection, (little if any improvement has been done to the creek); levees are input (none are found within our site); floodwalls are placed along the creek (the creek's west bank could be considered a floodwall past the wetland as its height is over 6 feet high).

During the 60's the creek originally was built with some grade control structures (huge rocks) but over the years Mother Nature has laid out many trees acting as structures (see picture below), eliminating some of the larger debris to continue on downstream. The objective is to avoid steepening the creek's channel, which results in adjusting the high flow to a gradual flow thus moderating the rate of erosion. (U.S. Forest Service, 2012).



Pictures taken by MKM North fork Peachtree Creek

A majority of sediment is often transported during the infrequent storms. Therefore, infrequent sampling would result in underestimation of the sediment load, especially where rating curves are employed. However, high frequency sampling is impractical due to large amount of waterways in Atlanta, thus using alternative technology, such as in-situ sensors to monitor provide more accurate data. Turbidity is a not only a function of SSC which could introduce bias into the estimation of it (I.D.L. FOSTER, 1992)

To assure the North Fork is improved, channel modifications may be necessary, which could cause unavoidable physical or chemical changes in the surface waters, however any positive modification will improve the eco-system's ability to protect the streambanks, in addition to any levees, setbacks, floodwalls, grade control structures, vegetative cover, sediment control and improve the life span of the roadways.

If Peachtree Creek's buffer zone should include a bike/pedestrian pathway, children could walk or bike to school; thereby lowering the transportation costs to DeKalb County's school-system.

It would improve connectivity by inserting a pedestrian walkway, which supplies the community with a unique natural habitat that would most definitely improve both their mental and physical health, promoting walking which fights depression and obesity. These residents are surely impacted by the pollution generated by the multiple highways found near this urban site. It will improve the life span of the every species found at this urban site.

THE PLANNING PROCESS

This paper is set up in three phases; the first phase began in September 2011. Three small groups participated in the clean up of debris and tires found in the wetland and creek. The Holy Cross Catholic Church's Boy Scout Troop 15, Georgia Tech Hispanic Alumni Network (GTHAN) and the Georgia Tech Water Alliance (GTWA) student group participated in a two-day process of removing trash, both organic and those distributed by man. Unfortunately, the creek's buffer zone has large trash items that will require removal by a machine.

Phase I – Clean up of the N.E. Expressway Wetland and a small portion of the North Fork of the Peachtree Creek located behind 3099 Colonial Way, Chamblee, GA 30341, Georgetown of Atlanta; a condominium and town home multi-family housing complex. [Partially complete – the remainder must be initiated by the County with possible fines to the complexes].

Phase II – Establish neighborhood groups to monitor the regular clean up and promotion of the Corridor. Become and stay involved with DeKalb County's Planning and Watershed Departments, utilize their assets, and continue to educate others about the wonders of 'green infrastructure' and the asset that lies within their grasp, everyday. Approach DeKalb County Watershed about raising the water level to the N.E.

Expressway's Wetland, to assure it consistently contains a small level of water, enough to sustain the wildlife habitat within the vicinity(G. DeKalb County, 2012a)

[The HC Boy Scouts Troop 15 was asked if they might have an interest to commit to future clean-ups of the creek, possibly once a year], [CDC office in Business park should be approached to become involved due to the nature of importance waterways have to our health].

Phase III – Approach neighbors, DeKalb County government and political constituents to restore this wonderful green infrastructure and implement a special stormwater pathway (pedestrian/bike) along the buffer zone with two small footbridges leading into the neighborhood allowing children to commute to school by foot or using their bicycles.

These bridges will also provide connectivity for the neighbors to commute to shopping centers, such as Publix located on Shallowford Rd.; or for those employees commuting to work via the MARTA bus and train. All of these improvements promise to raise the property values, continue to lower the crime rate, while improving the health of both the children and other residents by supporting a pedestrian friendly environment.



Methodology

This Capstone paper will provide detailed information about the wetlands, their importance to the eco-system, the storm water greenways and The Peachtree Creek watershed here in Georgia. Specific analysis will highlight the Best Management Practices, infrastructure techniques suggested by Mr. Dave Rosgen & other case studies evaluation discovered in North Carolina, and Colorado, that address similar situations this corridor is suffering from. A proposal of financing mechanisms will be pursued that may support the special designation and restoration procedures necessary to preserve this Green Corridor and Wetland Hub.

In addition, suggestions on how to enhance the area into a more pedestrian friendly environment that supplements those methods of transportation already interplayed in this community, are included, in hopes of gaining a grant such as the Atlanta Regional Commission's Living Center Initiative (LCI) designation. Or possibly be a participant in DeKalb County's Master Living Plan. The LCI program awards planning grants directly to local governments and nonprofit organizations that prepare plans for the enhancement of existing corridors consistent with regional development policies(Law, 2005) .

A Small Area Plan borrowed from the City and County of Denver will be utilized outlining specific criteria and their possible impacts to the restoration of the corridor. This particular method allows both city planners and the public a better understanding of this project and its vital importance to the communities influenced by the North fork of the Peachtree Creek.

Stakeholders & Partner Strategies Pertinent to this Small Area Plan (SAP)

Proposal Criteria: DeKalb County's Planning Department and Board of Health are sponsoring the Master Active Living Plan, which is embarking on a plan that will identify mixed-use activity centers that can be better design walk-able communities that allow pedestrians to commute to school, libraries, parks, health clinics and allow connectivity between neighborhoods.

The Southern Company's Five Star Partnership is a collaborative effort to conserve habitat, protect wildlife, educate children, provide recreation, remove trash, develop communities, and accomplish other services.

It would allow implementation of DeKalb County's Form Based Design, providing a solution to fit the current middle class 'Boomers' subdivisions. In so doing restoring the Green Corridor permitting it better relate to the elements of the development surrounding it i.e. N.E. Expressway, University Business Park, Mercer University, while encouraging common spaces that ensure movement throughout the community, thereby promoting pedestrian traffic such as walking and biking which will reduce the human footprint (Richert, 2011).

Federal Agencies' Stream and River Policy Changes

USGS is working closely with watershed and river associations, such as the Alliance for Chesapeake Bay and Watershed Committee of the Ozarks, to monitor and collect water samples. Having citizen monitors enhances the regular monitoring data by filling in gaps with the more frequent sampling. Visual observations made by citizen monitor can assist with where to place the focus for further analysis (Hamilton, 2005)

Anne Zimmerman, the director of the Forest Service's Watershed, Fish, Wildlife, Air and Rare Plants program feels headways areas are at the forefront of concern, "To have a healthy functioning system the headways must be in good condition". Next, on the agenda the problem of obstructions are to be addressed, as those devices used presently,

often limit what can pass along the stream, which can cause long-term damage to the stream. Traditional culverts impede passageway, so new structures similar to bridges are built that open-bottom culverts so as to assist the movement of fish and other species along the waterway (Landers, 2010).

State of Georgia Stormwater Management Manual

The drafting of the Georgia manual was a collaborative effort of multiple agencies all in acknowledgment of this new paradigm shift – storm water is no longer a waste but a resource. This Manual helps Georgia to move forward with a strategic approach on how to address stormwater management. By integrating drainage design, stormwater quantity, and water quality considerations recognizing the importance of stormwater, it is an asset to communities

The intent of stormwater pollution prevention is reduce the presence of pollutants and prevent stormwater from coming in contact with pollutants resulting from activities in commercial, industrial, institutional, municipal and residential settings. Its aim is to prevent contamination of stormwater runoff at its source, before it has an opportunity to pollute the runoff flow and enter the conveyance system.

The following are Georgia's general pollution prevention practices found in their upcoming Stormwater Manual, that apply to this SAP, that suggests application to any potential polluting activity: • Minimize Use of Pollutants • Reduce Pollutant Exposure • Locate Activities Appropriately • Avoid the Activity or Reduce its Occurrence • Perform Preventative Maintenance • Implement Good Housekeeping(Atlanta Regional Commission, 2011).

Atlanta Regional Commission

This Small Area Plan encompasses a multitude of factors outlined a wide variety of other programs here in state, such as:

The Atlanta Regional Plan for 2040.

1. Increase the safety of the transportation system for motorized and non-motorized users. 2. Increase the security of the transportation system for motorized and non-motorized users. 3. Protect and enhance the environment. 4. Promote energy conservation. 5. Improve the quality of life. 6. Promote consistency between transportation improvements. 7. Merge state and local economic development growth pattern planning. 8. Promote sustainable economic growth. 9. Increase opportunities for mixed-use development and transit oriented development. 10. Protect the character and integrity of existing neighborhoods, while meeting their needs. 11. Increase the amount of quality connectivity and accessibility of greenspace. 12. And, coordinate local policies and regulations to support regional policies (Commission, June 22, 2011).

DeKalb County Public Works & Department of Transportation

LCI Pocket Parks – is a current existing opportunity for communities to develop parks and connectivity pathways for pedestrians and bicycles. The Public Works and Transportation Division has identified a shortage of neighborhood parks, therefore the idea of creating pocket parks in the Tucker, Northlake, North Druid Hills, Candler and Brookhaven area is being pursued. These small hidden parks are placed into the urban fabric easily (Sustainability, 2011).

Neighborhoods

Greenways reduce crime in neighborhoods. Over sixty surveys on greenways in several states report that these parkways have not experienced serious problems regarding vandalism, crime or trespassing, to the disappointment of many opponents. Prior to establishing them, this is often the major concern but once the development is final, those fears dissipate (Alliance, 2003).

Planning Context

Review/compare Comprehensive Plan

The community's residents need to address its connectivity to assure it keeps its stature of being a great place to live; because as the population gets gray, their opportunity to commute will be limited, without their vehicles.

Ms. Joann Greco states in "Hail to the Blue and Green" that we are clearly seeing the competition between natural and developed uses, and there is a need to be balance and prioritized better. The biggest issue that is facing local governments that once allowed cul-de-sacs within their neighborhoods is connectivity and access. Restoring areas with water are more inclined to become competitive with other communities because of the access, recreation, and beauty they offer. "They become another crucial way to enjoy the vibrancy an density of the city" (Greco, 2010).

Sustainability is a key component in this shift of the paradigm, and unlike our technological fixes that we often rely on, this movement must involve a change in behavior. Lessening our dependency on the automobile and pursuing different modes of transportation (mass transportation, walking); living with higher density ratios, tolerating social diversity and varying the land-use.

This may include up zoning to allow higher densities, which recently occurred during 2007-2009 (unfortunately, most lot sizes were not of sustainable size), however many multi-family housing units were added that supplied the higher density (however due to the economy, many units within these complexes remain vacant). Therefore, the move to make houses into live-work units would suffice to counter this last infill development.

Reconfigure our thoroughfares and intersections to become more multi-modal and more pedestrian friendly. Retrofit some of the McMansions into senior housing or community-related service centers. Restore our nature plats, thereby supplementing our welfare and health (Talen, 2011)

Public Participation in Master Plan

The Atlanta Regional Commission's 2040 Plan includes an LCI plan that encompasses the requirement of developing and implementing a public involvement and outreach plan, where neighborhood groups can create a process that engages a wide array of stakeholders, which includes property and business owners. Certain methods throughout the process assure interaction takes place, which include community meetings and design charrettes (Atlanta Regional Commission, 2011a).

The DeKalb County Comprehensive Plan's Community Agenda's most important part of is the mandate for public participation in the planning for the community's future. It provides guidance for future decision-making in a straightforward, user-friendly document that can be used everyday.

The Community Agenda assures the neighbors have enthusiasm about the project ensuring the plan will reach the implementation stage.

Other small area plans addressed in the comprehensive plan

Reimagining Shallowford Road and Community Improvement District

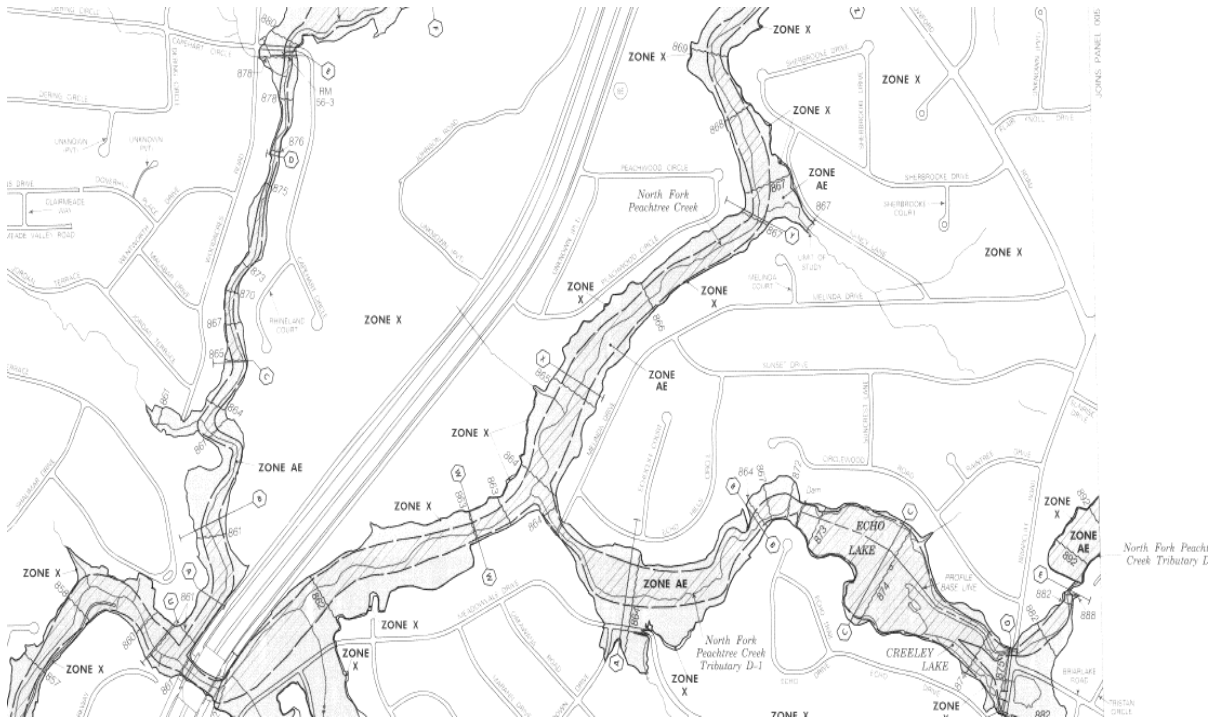
In June of 2010 the North Briarcliff Civic Association met with the DeKalb County Planning Department about reimagining Shallowford Road. In fact, they entitled the project just that. Ms. Beth Nathan, the current president at the time, wrote to DeKalbs Commissioner Mr. Radar, in December 2010 when nothing more was heard about the Reimagining Shallowford project and new information was released about a new Community Improvement District (CID), to be located at I-85 n Chamblee-Tucker.(see Appendix B).

Urban drainage design studies

Georgia's Stormwater Manual for local governments states that they will have to confront the greater portion of this shift in the paradigm; as predominant financing tools are no longer available, thus the financing will either be passed onto developers, who ultimately will pass on the cost to homeowners or private support must be obtained (Greco, 2010).

It suggests searching for a design solution that fits this middle class 'Boomers' subdivision should include a touch of form-based design; restoring the Green Corridor so it relates to the elements of development, the roads, buildings, common spaces the promise to ensure movement throughout the community, thereby promoting walking, biking and reducing the footprint. Form-based design promotes density, with a community center to meet the community's needs (Richert, 2011).

FEMA opted to modify the flood zone in 2009 and began to notify neighbors in 2010 of the change assuring they obtain flood insurance, to maintain their mortgage.



(FEMA, 2011)

Economic Health of DeKalb County's Watershed

In 2010, bond investors were successful in purchasing all of DeKalb County Water and Sewer Bonds, through a transaction that raised \$381 million, for the overhaul of its water and sewer system (DeKalb County, 2011b) . .

Finance Tool	Link	Eligibility
Five-Star Restoration Program	http://cfpub.epa.gov/fedfund/program.cfm?prog_num=29	Eligible Applicants: Business , Community/Watershed Group , Nonprofit Groups , Educational Institution , Private Landowner , Conservation District , Water and Wastewater Utilities , Local Government , State/Territorial Agency , Tribal Agency Constraints for Eligibility see website.
Snagging and Clearing for Flood Control	http://cfpub.epa.gov/fedfund/program.cfm?prog_num=105	Nonprofit Groups , Conservation District , Water and Wastewater Utilities , Local Government , State/Territorial Agency
Watershed Protection and Flood Prevention Program	http://cfpub.epa.gov/fedfund/program.cfm?prog_num=64	Conservation District , Local Government , State/Territorial Agency , Tribal Agency Eligibility Constraints see website. Projects are limited to watersheds containing < 250,000 acres. Eligible project sponsors are county agencies, soil and water conservation districts, flood
Wildlife Habitat Incentives Program	http://cfpub.epa.gov/fedfund/program.cfm?prog_num=68	Those Eligible: Indian Tribes , Nonprofit Groups , Private Landowner , Tribal Agency Constraints: Individuals must own or have control of the land under consideration and cannot have the land already enrolled in programs that have a wildlife focus, such as the Wetlands Reserve Program, or use the land for mitigation. Public land is not eligible.
Aquatic Ecosystem Restoration	http://cfpub.epa.gov/fedfund/program.cfm?prog_num=104	Those eligible to apply are Nonprofit Groups , Conservation District , Water and Wastewater Utilities , Local Government and State/Territorial Agencies
Community based Habitat Restoration Partnership Grants	http://cfpub.epa.gov/fedfund/program.cfm?prog_num=17	
Environment	http://cfpub.epa.gov/fedfund/search	The project has a 25 percent non-federal match required by statutory

al Education Grants for Watershed Protection from EPA	ch2.cfm?prog_num=25	formula. For the purposes of this section, the non-federal share of project costs may be provided by cash or by in-kind contributions and other non-cash support.
Wetlands Reserve Program (WRP) Georgia NRCS	www.ga.nrcs.usda.gov/programs/wrp.html	voluntary program that assists landowners in restoring, protecting, and enhancing wetlands on eligible private or tribal .

ASSESSMENT: INVENTORY & ANALYSIS OF ISSUES AT HAND

Presently: the Green Corridor is in dire need of maintenance and cleaning. New methods need to be applied to the creek relieving it from consistent damage to its banks. Due to high sedimentation of the water, this should be receive immediate attention. Working along with neighborhood organizations and RiverKeeper, the clean up should not warrant any great expenses, as volunteers are performing the labor.

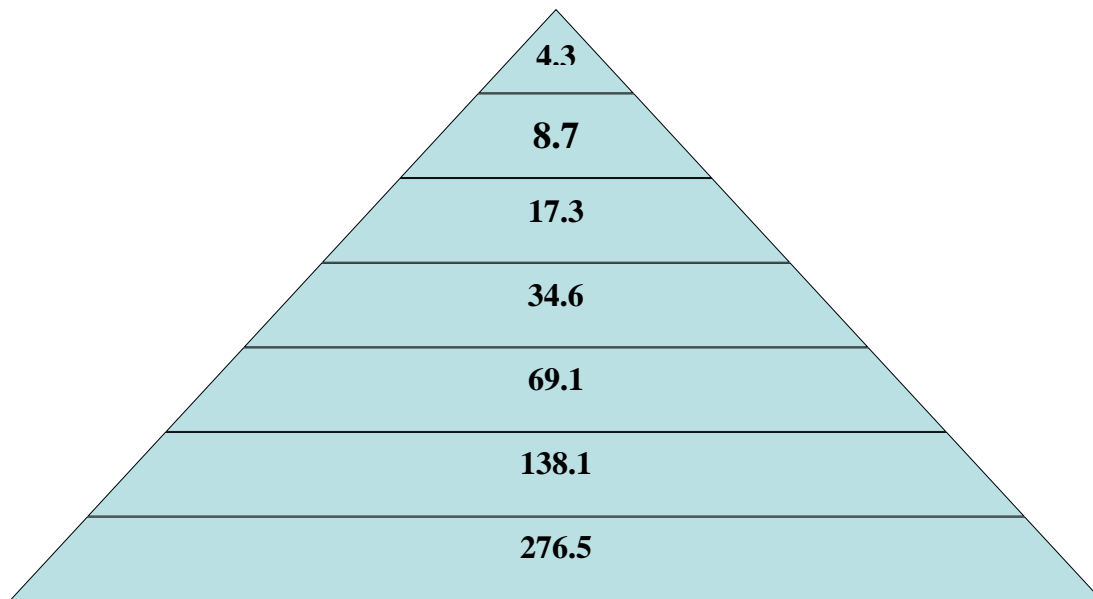
Past: efforts have been at the minimum, and due to high development along the creek, those small efforts were insignificant in making progress. Consistent permission to build within the buffer zone has made the creek susceptible to increasing the likelihood of flooding, especially since it is a combined sewer overflow option.

Future: The buffer area, if upgraded to include a pedestrian/bike path can add benefit to the community by supplying a direct correlation to improving their health, and providing connectivity from the elementary, middle and high schools found within its boundaries. This pathway can provide pedestrian friendly travel between Chamblee-Tucker and Shallowford Rd, both carrying MARTA bus-lines from and to the Chamblee MARTA and the Lennox MARTA train stations. Visually it can result in less stress and mental fatigue for the human habitants found in the area while increasing their health quality.

Address Issues at Hand

Problem 1: Old infrastructure

According to the American Society of Civil Engineers' March 2009 survey, an estimated over seven billion gallons of clean drinking water are lost each day, in the U.S., due to leaking pipes alone, not including the main breaks.



Gallons per day water loss in U.S. per American Water Works Association (AWWA) Dec 2010

Problem 2: Combined Sewer Flow & Sedimentation

Sediment, often originates as topsoil, sand, and clay, and is the most common pollutant in stormwater runoff. Excessive sediment concentrations are detrimental to aquatic life because they interfere with photosynthesis, respiration, growth and reproduction. The high turbidity that results from the increase of sediment increases the cost of treating drinking water, and reduces the surface waters value for recreational and industrial use. This uncontrolled sediment fills the ditches and small streams, clogging up storm drains and pipes, which lead to flooding and thus property damage, increasing private and public maintenance costs. Sedimentation also reduces the capacity of reservoirs and lakes, by reducing the depth of navigation channels, harbors and silt estuaries (Atlanta Regional Commission, 2011).

Problem 3: Present Funding

Presently many municipalities funded their programs utilizing only one source of such as permit fees, tax increment financing, or sales tax, which has proven not to be future-oriented as those fees are attached to regulatory actions, the TIF is bound to school district monies and now being re-evaluated by the courts. This calamity is even more difficult for local level governments as they depend solely on one stream of sourcing, such as the sales tax, disallowing them from meeting compliance demands set forth by the regional comprehensive plan (Atlanta Regional Commission, 2011a).

Problem 4: Neighborhoods not pedestrian-friendly

The neighborhoods are interlaid with cul-de-sacs disallowing any pedestrian friendly transportation modes, such as walking or biking. During an emergency, this could be very problematic. Currently the residents enjoy their privacy unknowing and uncaring to the problems it creates for the community.

Problem 5: Dumping in the North fork of the Peachtree Creek

Nutrients - such as phosphorus and nitrogen compounds are necessary for plant growth. High levels found in stormwater runoff, can result in water quality problems, affecting their use for recreation, water supply and aquatic life. A fecal coliform bacterium in water indicates the presence of pathogenic (disease-causing) bacteria, such as viruses and other microorganisms. Wastes resembling animal and food wastes, failing septic systems, and some fertilizers are known to contribute harmful microorganisms to the stormwater runoff(Atlanta Regional Commission, 2011).

Oils, greases and fuels - contain a collection of hydrocarbon compounds harmful to water Quality; low to moderate levels can result in toxicity. They make the transfer of oxygen difficult and they too can affect drainage facilities leading to higher maintenance costs and adding to potential flooding problems(Atlanta Regional Commission, 2011).

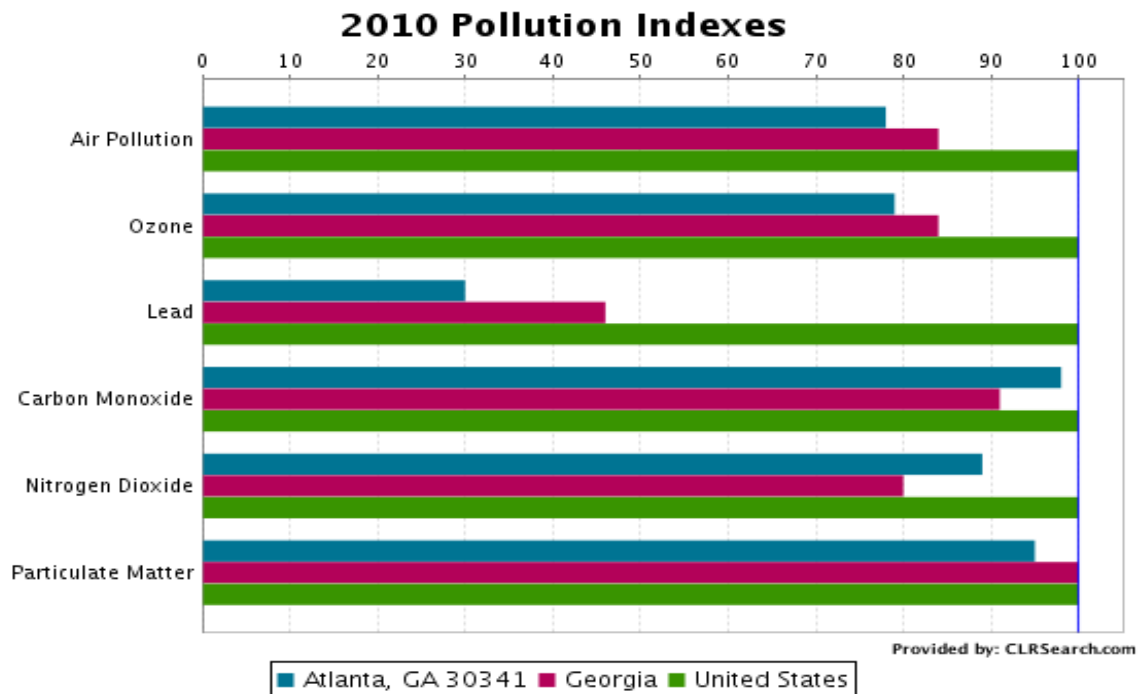
Trash and Debris - In drainage pipes, ditches and smaller streams, trash and debris has the potential to cause blockages resulting in localized flooding and erosion

Problem 6: Health Impacts due to I-85 traffic and major thorough-fares

Lead Compounds (LC) produce a variety of biological effects in humans, the amount t and level of exposure will determine the ultimate effect. However even minor amounts can produce biochemical blood conversions that will have unfavorable health consequences. These can be life threatening and are irreversible. LC can alter or disrupt the body process, especially when considering the nervous system, the blood forming system and kidneys. Other concerns are the effect on men's semen levels and the effects on unborn children when in the mother's womb.

Some of the side effects are agitation, insomnia, dizziness, tremors, and delirium, which leads to mania, coma and even death. Typical symptoms are nausea, abdominal pain and vomiting (hse.gov.uk).

By looking at our index found below, we can see that the air pollution levels are high for the 30341 zip code area, but well below the nation's reading; however, the carbon monoxide and nitrogen dioxide levels are greater for our area than even Georgia's overall score.



2010 Pollution Indexes	Atlanta, GA 30341	Georgia	United States
Air Pollution Index	78	84	100
Ozone Index	79	84	100
Lead Index	30	46	100
Carbon Monoxide Index	98	91	100
Nitrogen Dioxide Index	89	80	100
Particulate Matter Index	95	100	100

The data for Atlanta, GA 30341 may also contain data for the following areas: Atlanta, Chamblee **Index score:** (100 = National Average) for an area is compared to the national average of 100. A score of 200 indicates twice the national average, while 50 indicates half the national average (clrsearch.com, 2012).

Problem 7 Debris

Debris: Tire dumping is one of the worst types of pollutants found in our waterways. This is because a tire's design is made to last and be tough, giving them a life span of thousands of years. When left out in the open or dumped at waterways, they are known to be breeding grounds for mosquitoes and other insects and rodents and depressing the value of the surrounding land. They emanate an oily residue that can enter the waterway adding to the pollution. (Government, 2012).

The Georgia DOT's Beautifying Georgia Plan includes a program where the recycling of tires is encouraged, the program involves private and public partners; the Department of Natural Resources (DNR), Mohawk Industries, Home Depot and Liberty Tire. Recently in 2011 Districts 1, 6 and 7 collected over 305 tons of scrap rubber, at a cost of \$103 per ton, and annually an approximate cost of \$39,700. An average cost per tire of \$2 to ten dollars.

Considering tires originally cost the buyer an average of \$50 - \$200 each, this disposal cost is minimal, however most drivers are not responsible for the cost of recycling of the tires. Moreover, small auto shops often do not have the additional overhead to cover the high charge for their disposal – leading to a vast amount of tires being illegally disposed.

If additional tire recycling programs existed, the cost most likely would decrease due to the increase in demand for the new by-product, rubber asphalt, rubber foot mats and landscape mulch. Studies report that rubber asphalt is the most shock absorbent for playgrounds, athletic fields and arenas. It has many other uses, such as fall material under rope and obstacle courses, military training pits and as a backstop for gun ranges (RubberMulch.com, 2012).

Educational programs should be established notifying neighborhood organizations and citizens about the importance of keeping our streams/creeks and rivers clean, not only for flooding purposes but also for multiple purposes mentioned in this paper for example the health and well-being of our children.

GIS information

Its coordinates are +33.9036 latitude, -84.3312 longitudes, placing it in the Upper Chattahoochee River watershed (HUC8: 03130001). It is 310 meters (1016 feet) above sea level.

Arts & Culture – important component of area (NATURE)

The PATH Foundation has aided in the establishment of trails stretching from Georgia Tech to Stone Mountain, a Master Plan has initiated to tie 124 miles of greenways in southern DeKalb County. The benefits of this move will make communities more accessible and livable by securing open space, provide a recreational facility for walking, hiking, running and biking. Thereby providing different modes of transportation; boost local economies, as people are now shopping locally, and protecting our environment (Little, 2010).

Plan Recommendations: Goals & objectives

Water based neighborhoods have served as centers for commerce and industry but also as the hub for social and recreational pursuits. There is no magic recipe, making waterfront projects a success. However, at the core of every success is a small group of private citizens. The real elements do not exist in policies and regulations but with the people, ideas, and dedication. Understanding the floodplain means appreciating the harmony with nature that must exist for the river to maintain its natural movements. A river while

a few people determine its use and quality really belongs to all the people (Shoemaker, 1981).

Man's influences on rivers and creeks focus on exploitation and degradation. In order for improvement efforts to succeed and endure the test of time the restoration of a natural environment must be a primary goal; it must promote boating, hiking and biking, yet able to handle flooding and make other public facilities such as picnic areas accessible.(Shoemaker, 1981).

Phase III – Implementation techniques will center on the health and economic benefits for all its residents due to the revival of the Green Corridor. Literature findings will reference these new techniques and their improvements to their communities. ..

Problem		Resolution
1	Old infrastructure	Getting planners involved in water infrastructure because they know the best locations for installing lines; the easiest placed to access, if a break should occur and where it will least affect the public. Engineering departments ordinarily specify what type of pipe is used and how deep they are buried, based on the weather conditions of the area. Other items considered are types of corrosive soils and the proximity of other utilities. If a break should occur, sidewalks and soft ground beside roadways are cheaper and faster to repair. Placement of the main trunk line behind the curb alleviates any disruption that may occur with traffic, if a leak should occur. The water planners, based on the expected water demand, can estimate other issues such as the size of the new mains. Planners also have the ability to assist the public with a better understanding of what the city is doing and the type of problem they are incurring. They are better at guiding the process of the plan for the new facility, while taking note of soil types and other environmental constraints (Atkinson, 2010).
2	Combined Sewer Flow & Sedimentation	BMP's should be used with any renovation or restoration of the creek banks; residents need to start incorporating LID techniques, to lessen the stormwater runoff, reducing the heavy flow into the combined sewer. Techniques such as bio-retention and rain gardens, strategic grading, flatter and wider swales, longer flow paths, landscape Island Storage, smaller culverts, pipes and inlets. Replacement of the road tops with alternative surfacing, elimination of curbs and gutters, and the insertion of catch basins
3	Financing	Combine survival skills, such as the ability to manage and

		<p>technology shrewdness, to acquire innovation. Shift the perspective toward sustainability allowing the ability to grow, but with a focus that assures over-stretching of the definition will occur; it is not to encompass all possibilities (Greco, 2010). Build incrementally, as part of an aggregate effort thereby lowering the level of debt. Utilize new mandates and grants such as the new stormwater approaches advocated by the Environmental Protection Agency, to replace the old methods that encouraged sprawl with new techniques that emulate natural hydrological specifications(Talen, 2011).</p>
4	Pedestrian Mode of Travel	<p>Provide a pathway for pedestrians walking or on bicycles to easily access adjoining neighborhoods; alleviate pedestrian traffic along the access road, which is very dangerous. Assist the stream-flow during the rain and flood season as well as drought periods.</p>
5	Dumping in the North fork of the Peachtree Creek	<p>Sweeping or bagging grass clippings rather than blowing or washing off paved areas. Avoid applying fertilizer and pesticides when rain is expected. Covering mulch piles; performing vehicle maintenance and repair activities in an enclosed garage. Wash vehicles on the lawn rather than in a driveway. Pick up pet waste. Recycle and/or properly dispose of fats, oils and grease. When trimming or taking down trees, call DeKalb County Waste for delivery of large receptors, once finished have them pick up the waste (do not add them to the environment, this causes undo oxygen problems, which leeches into the creek and hinders the livability of the animals found in the habitat). Discharge pool water to a sanitary sewer rather than the stormwater drain.</p> <p>Go online and find recycling companies; your trash is someone else's treasure. DeKalb is currently incentivizing the recycling of tires, by working along with major recycling firms.</p>
<u>6</u>	<p>Health Impacts due to I-85 traffic and major thorough-fares</p> <p>Air Pollution Impact and</p>	<p>Urban planning that integrates green design features such as rooftop gardens and regional greenways assists human beings to be more productive both physically and emotionally. The Academy of Neuroscience and Architecture are now working together to merge the two sectors together with new planning concepts and designs that foster exposure to nature.</p>

	Improved Health Benefits Problem	Allow children to walk to and from school during warm weather months.
<u>7</u>	Debris	Regularly clean up parking lots and outside areas at restaurants, complexes and business'. No dumping of used motor oil into a stormwater drains. Sweeping driveways and other paved surfaces. Check vehicles for oil and other fluid leaks. Perform regular septic system maintenance. Keep lids on garbage receptacles and recycling dumpsters. Avoid putting liquid wastes in dumpsters.
For All Problems	Public Education and Outreach	<p>Public education and outreach involves using effective mechanisms and programs, guided by a detailed outreach strategy, to engage the public's interest in preventing stormwater pollution. A multi-pronged approach to public education and outreach efforts includes:</p> <ol style="list-style-type: none"> 1. Generating basic awareness of stormwater pollution; 2. Educating at a more sophisticated level using more substantive content; and 3. Building on existing recognition of the issue to prompt behavior changes that reduce stormwater pollution and the opportunities for pollution(Atlanta Regional Commission, 2011). <p>Use informal power to request abusers of the stream to cease and desist, turn to media (Shoemaker, 1981).</p>

Additional information regarding Health and Well-Being of the Community

Problem 6 (continued) Health Impacts due to I-85 traffic and major thorough-fares;
Air Pollution Impact and Improved Health Benefits

The wiring in our brain allows regeneration of cells, allowing us to reform ourselves due to the trauma subjected by our world. Our evolutionary baggage connects us to nature and the natural world, ecological habitats are essential to our well-being. A community that develops with right brain connections emphasizes the unity and connectedness that can make life stimulating and meaningful. Homes colorfully painted, sidewalks embedded with tile, yards with ceramic figures and benches set out to welcome passers-bys are neighborhoods that ultimately help achieve world peace and overcome profound differences and conflicts (Beatley, 2010).

In 2010, a fifth grade teacher at Atlanta's Bethune Elementary School in Vine City implemented a daily regiment where for the first few minutes of each class, the children

were gathered into a circle, where they tossed a basketball around to hip-hop songs. The theory was a little bit of fun, involving movement would assist students' burn off extra energy, thus improving their retention to the class work.

In the late nineties, Atlanta nearly banned recess completely. But the superintendent of Atlanta Public Schools was quoted by the *New York Times*, stating the District's focus was on improving academic performance, and this isn't done having kids hanging on the monkey bars."



<http://www.atlantamagazine.com/january2011/playwithapurpose.aspx>

Because of this statement, the Georgia State Board of Education now requires all school systems to establish an "unstructured break time," policy. Currently, Atlanta, Cobb, and Gwinnett still does not require a fifteen-minute break on days when there is no physical education class for k-8 kids but DeKalb and Fulton mandate elementary school breaks. At ATOP, their report finds that unless the principal is a strong advocate of play, breaks often disappear altogether.

Parents must be the advocate for their children, when it comes to play. DeKalb's recess policies are stronger largely because a small group of dedicated parents petitioned the county. Findings show that a daily break is beneficial. For some children it may be the only physical activity that day. According to studies within the past twenty years, have lost an average of 8 hours of play per week, leaving over a third of children from getting their recommended daily sixty minutes of physical activity (Gentry, 2011b).

Georgia has the second-highest rate of childhood obesity in the nation. Those ailments found within the children of Metro-Atlanta are hypertension, diabetes, vitamin D deficiency, and poor conditioning; leading to the new generation living fewer years than their parents do.

Active play can help children fight obesity; it has been determined to ease the symptoms of diabetes, depression, and ADHD. Moreover, play facilitates with solving problems, negotiation, assessment of risk and improves the development of self-esteem.(Gentry, 2011b).

Reviving this Corridor would not only allow connectivity for children to walk to school saving on transportation costs, but also allow the kids to exercise before school begins, expelling early morning energy. Thereby allowing them to sit still and pay attention once they do arrive to school. Versus sitting still and quiet on a bus, for 45 minutes while other students are picked-up and escorted to school.

Having children walking to school and home during the early morning hours and during mid-afternoon has been found to hinder crime, as there are more eyes on the street watching ongoing activities(Gentry, 2011a).

The building of two small stormwater footbridges strategically at two points along the Creek, in the project area, promotes connectivity. It permits pedestrians to access the neighborhood schools for our multi-family housing children in addition to providing easier access to the MARTA bus stops located on both on Chamblee Tucker Rd. and Shallowford Rd for the single-family residents, found in the middle of the one way in and one way out streets.

CIVIC RESPONSIBILITIES

The neighborhood must think of the Green Corridor as a community asset and by including an outdoor classroom for schools, it solidifies the civic responsibility that children must have for their neighborhood.

If the community was to re-envision the area, and they were educated about the precedence for this planning effort, they might be more willing to have these small changes take place to the physical environment. Knowing they can create new opportunities for themselves by leveraging the significant environmental damage. These negative influences can be improved upon to create a better and healthy environment for the N.E. Expressway's Green Corridor residents.

DeKalb County should move forth with the use of MS4 permitting especially around the highway areas as they have an educational component that they must abide by and aim to reduce the combined sewer overflow volumes by educating the public about the different techniques they individually and in a group effort can participate in assuring changes are made.

They need to provide guidance and standards when improving the swales that run into the creek within the neighborhoods, at the commercial developments, at the multi-family complexes and especially at the movie complex parking lots.

Ask neighborhood groups to join in with clean-up efforts of the areas. Offer incentives to future developers to include green roofs on multi-family or office structures. Increase the amount of trees implanted in areas where large amounts of impervious surface are found, use LID concepts to combat the amount of impervious surface found on individual properties.

Public – Assure there is facilitation with the organizing and hosting of community charrettes and produce a number of products that will build the basis of the Small Area Plan.

The increase in activity to the station allows for development opportunities called Transit Oriented Development (TOD). TODs are described by four basic principles, which define

the essential characteristics of all successful TODs: greater density than community average, a mix of uses, quality pedestrian environment, and a defined center.

DeKalb County received a USACE Public Works/Roads & Drainage Stormwater Improvement Project Award in 2012 for \$3,900,000; current river/stream projects earmarked for this money are the South River, South Fork Peachtree Creek, and Snapfinger Creek, with a one-time trash and debris removal from the banks and streambeds, thereby improving the overall quality and sustainability of the streams (G. DeKalb County, 2012b) .

The Georgia Conservancy's Blueprint is an education and technical assistance program intended to facilitate community-based planning across the state. It assists the community by creating sound conservation and growth strategies, while building a consensus voice for action. The community design workshop allows participants to discuss pertinent issues in the area of concern, as well as possible solutions and strategies (Conservancy, 2006) .

The Five Star Restoration Training Grant Program brings together citizen groups, corporations, youth conservation corps, students, landowners, and government agencies to undertake projects that achieve environmental training through voluntary, community/watershed-based wetland restoration projects (U. S. E. P. Agency, 2012).

Private- Small strip malls known as small nodes contribute to the servicing of the community; places such as grocery and convenient stores, laundry and dry-cleaning facilities that supply everyday needs of the community. Therefore providing safe access to and from these nodes will successfully contribute to the overall welfare of the neighborhood by integrating the neighborhoods into a community, which was disconnected as a result of planning performed in the past(Aldrete, 2008)

Non-profit groups - Special events held within the community, especially those sponsored by non-profit organizations can create important building blocks that solidify a community, which can result in producing healthier inhabitants(Aldrete, 2008). .

One such group is the National Bike Challenge which is sponsored by the Kimberly-Clark Corporation, the League of American Bicyclists, Bikes Belong, and Endomondo. The contest targets Americans to become empowered by riding their bikes; as alternative modes of transportation and improving their health through recreation. The challenge has individuals sign up as individuals or as a team, log in the miles they travel and share their stories, all to compete for prizes and awards, locally and nationally. The grand prize is a trip through California wine country from Trek Travel (Bikes, 2011).

Organizational groups - Neighborhood organizations can lobby to assure the problem of connectivity is reduced. Educating the citizenship that providing connectivity within the neighborhood, where every neighbor is able to meet their everyday needs, allows everyone to contribute to the overall welfare of the community(Aldrete, 2008). This project can assist in solving some of this area's connectivity problems.

Two neighborhood organizations were involved in preparing this paper by supplying information or time devoted to the clean up of the creek and wetland in early October 2011. The Briarcliff Neighborhood Association supplied the author with input on ongoing activities with the Watershed and the Holy Cross Boys Scout Troop #15 along with the Georgia Tech Water Alliance student group were instrumental with the cleanup.

Interviews: Conversations with the North Briarcliff Civic Association's ex-President, Beth Nathan disclosed the difficulties they have had attempting to get the creek cleaned, maintained and possibly restored. It seems the developers built the property lines right up to the creek, leaving individual homeowners responsible for the maintenance and upkeep of the creek along their property, as well as the retention ponds. This results in finding the individual owners to supplement any costs incurred in the cleanup or maintenance of the creek and its buffers. Many of the owners are unaware they are individually responsible for the upkeep of the creek, wetland, day-light streams in the neighborhood and retention ponds (Mondragon, Apr 2012).

ASSIGNMENT OF PRIORITIES

Responsibility & schedule

The creek is low during the winter months and the wetland often goes dry during the Fall season. This is a prime time to schedule activities to pick up the debris and possibly remove some of the larger debris, such as the enumerable amount of car tires found littered throughout the Corridor. If Troop #15 set aside 2 weekend days to have, the boys earn a badge, by giving back to Mother Nature, and the Water Alliance group volunteered 2 weekend days, during the dry period the site could substantially improve. If neighbors and the administration of the multi-family complexes avoided from littering the natural habitat with cut branches, Christmas trees and large items the entire area would improve.

Follow-up evaluation, new priorities established

The neighborhood organizations need to sit down and establish priorities based on the Phase processes of this Small Area Plan with DeKalb County Planning and the Watershed Departments.

Case Studies

Denver, CO

Denver, Colorado's regional planning initiative known as the Metro Vision 20/20 suggests the creation and integration of small area plans (a network) that address issues in land use, economic development, transportation, housing and the environment. These plans compromise a vision of sustainability that will include a well-balanced network of systems to connect mixed-use urban communities. One of the six integrated elements is pertinent to this project, freestanding communities: identifies existing communities that should remain separate from the urban area, and strives to improve internal transportation systems, the jobs/housing balance, and community facilities.

The South Platte River in the past was similar to how the North fork of the Peachtree Creek is the dividing line between different zoning areas; multi-family, commercial, office-space, and single-family residences. The Creek serves as a dumpsite for the community to pollute with debris, tires and other trash, and recipient to large amounts of non-point source pollution.

The South Platte River as a Focal Point - Denver has begun to rethink its connection to its natural context starting with the Platte River redevelopment adjacent to the neighborhoods. Historically, the river was treated as a back alley, where waste and other noxious undesirables were deposited. The river physically serves as an organizing element to the City, seaming edges of neighborhoods together and connecting the City east to west. It serves as public park space for neighbors to gather and enjoy a sinuous natural greenway with discovery of smaller developed parks along the river (Brinckerhoff, 2008)



Confluence Park, Denver,CO

You will find this unique and scenic **Confluence Park** is a unique and scenic that is located in lower downtown at n 15th Street where Cherry Creek and the South Platte River meet. You can sit along the bank and watch the kayakers brave the rapids on custom-designed chutes or sunbathe on the sandy banks. During the summer, **Confluence Park** is home to a free concert series. It is a great place to just sit and have a picnic enjoying the panoramic view of downtown Denver. Or take a nice evening stroll as there are separate trails set aside for bikers and pedestrians .



Cherry Creek, Denver,CO

Cherry Creek is anchored around a 880 surface acre reservoir, with a large park offers a natural prairie environment of gentle, rolling hills and complete outdoor recreation facilities, including camping, picnicking and facilities for group events. The Cherry Creek Watershed satisfies the drainage needs of Denver's fast-growing urban area. In Denver, everything flows downhill; the creeks, ponds and reservoir within the basin receive incalculable amounts of debris and chemicals carried along stormwater pathways.

The Colorado Water Quality Control Act and the Federal Water Pollution Control Act mandate that permitting must be authorized to discharge the stormwater associated with municipal storm sewer systems. This led to having the State Park to develop a stormwater management plan under the Colorado Discharge Permit System (CDPS)(Parks, 2011)

Westerly Creek, Denver, CO

Westerly Creek is moving forward with the development of a Master Plan that will improve the community's well being for Denver, Aurora and the neighborhoods that have developed along it. This will be completed by enhancing the stream environment, by providing trails for pedestrian traffic or bicycles and plenty of open space. This promises to enhance the stream environment, while building social connections and improving the public's safety.



Pictures taken by MKM July 2011, Westerly Creek, Denver, CO

Denver in coordination with Urban Drainage and Flood Control District (UD&FCD) will examine and make recommendations for the flood control alternatives. This area is approximately the same size as the 3-part wetland, our site; Westerly's reimagining encompasses thirteen city blocks. Westerly similar to North Fork's pathway will meet the goal of creating a linear park, an attractive Corridor for pedestrians and cyclists connecting neighborhoods. The neighborhood groups and the City's project team are working in partnership with a small non-profit group, the Greenway Foundation. It has been working for over three years on this project (Foundation, 2010).

Pueblo, CO

The Arkansas River Restoration Science Synthesis

The City of Pueblo, Colorado with a population of approximately 106,000 lies along the Arkansas River; at one time it was very influential hosting a major steel factory within its territory. In 1921, the channel of the river was altered due to a huge flood; the majority of the flow was shunted around the city, while portions were allowed to enter facilities such as a power plant. The remainder was piped up, covered and forgotten. During the 80's when steel factories began to close up, the city was looking for ways to revitalize itself; they began to plan ways to restore the river ways, similar to San Antonio's Riverwalk. The original channel is converted into a commercial corridor. The city working closely with Design Studios West came up with the Historic Arkansas Riverwalk of Pueblo (HARP)(Landers, 2010).

Along the river, areas such as walkways, public areas and of course commercial development would be implanted. A gate would monitor the diverted flow to 25 to 75 cfs, allowing gravity to control its passage under bridges and over cascades before returning to the river's natural habitat. The main channel was featured from 30 to 60 feet wide with a depth of 3.5 feet, leaving the channel to extend several downtown city blocks (Landers, 2010).

Financing for The Arkansas Riverwalk came down to voter approval. Pueblo voters approved a bond for \$12.8 million dollars to pay for the first two phases of the project, which was supplemented with \$13 million in foundation, state and federal grants. The process began with road and infrastructure relocation in 1996 and during the 2nd phase work on the channel and the building of three new bridges was completed in 2000. The third phase included improvements to the existing waterway with a new spur from the main channel during 2005 – 2007. The fourth phase which is ongoing has resulted in the cost of \$30 millions; however what exists will give back ten-fold to the citizenry(Landers, 2010).

The 32 acre urban waterfront now gives the City of Pueblo a new image, a strong sense of place. The project promises to attract new development, since its development, HARP has estimated over \$120 million of public and private investment in the downtown area.

VISION STATEMENT FOR 10 to 20 YEAR PROGRESSION

Recommendations

The community must be reminded of this wonderful asset they have within their midst, and be instructed to re-envision how this Green Corridor can become an outdoor classroom for their children; improve their well being by encouraging the ability to walk to destinations, take mass transit conveniently, and shop locally.

Education should be distributed through the children, in their schools and after-school programs, such as the Boy and Girl Scouts. In addition to addressing neighborhood groups such as the North Briarcliff Civic Association. DeKalb County has a Watershed Education unit that goes to classrooms and neighborhood organizations, enlightening them about the wonders surrounding them.

With all the incentive programs transpiring, every one of them has a public input portion. This will give the neighborhoods and multi-complex residents an opportunity to participate in the planning process in making potential changes for their future; the period of retirement is around the corner, these citizens need to think of their future, and the well-being of their children. Obesity is one the worst health diseases affecting us today.

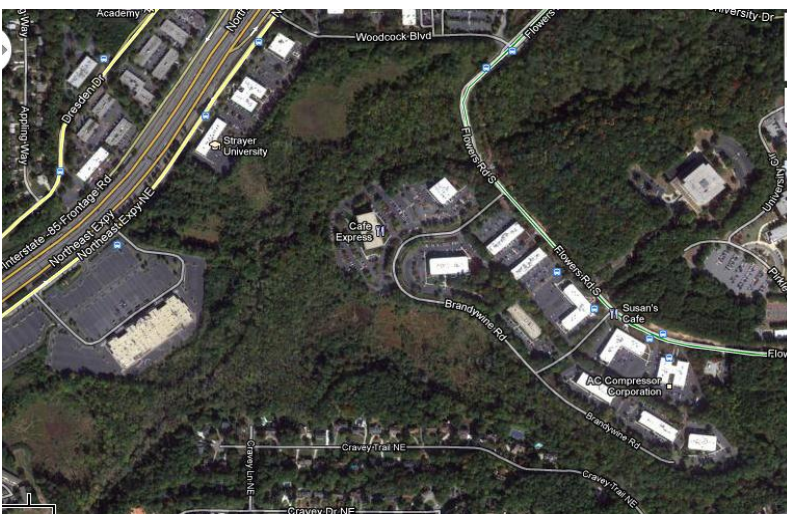
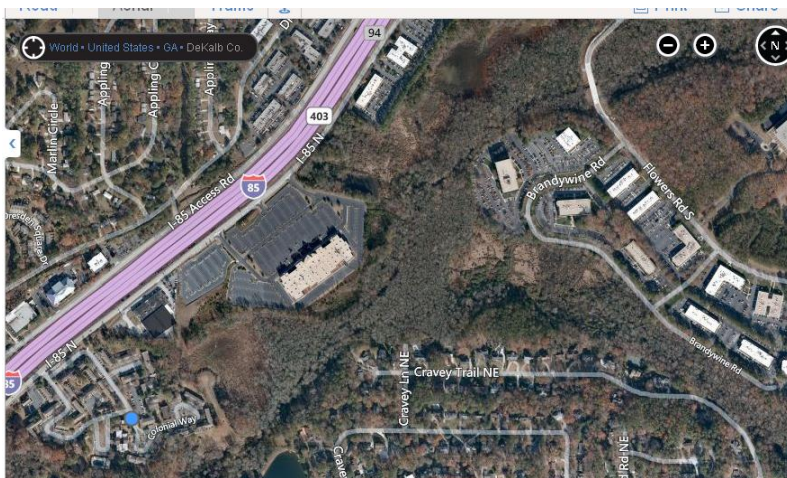
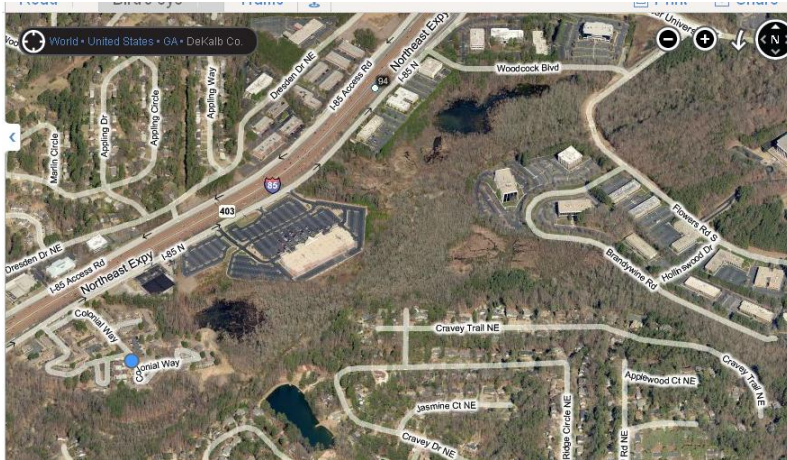
To assure that progression continues with the upkeep, it is advised to find or create a non-profit organization that will assist and consult in behalf of the neighborhood group's best interests. Such as the RiverKeeper or smaller chapters that are working on their portion of the river.

For this Corridor to continue giving back to the eco-system and the watershed, new opportunities need to be leveraged that will insure significant environmental remediation proceeds, hoping to undo at least a minimum of the damage that is happening to it today.

Residents need to start incorporating LID techniques, to lessen the stormwater runoff, reducing the heavy flow into the combined sewer. Techniques such as bio-retention and rain gardens, strategic grading, flatter and wider swales, longer flow paths, landscape Island Storage, smaller culverts, pipes and inlets. Replacement of the road tops with alternative surfacing, elimination of curbs and gutters, and the insertion of catch basins.

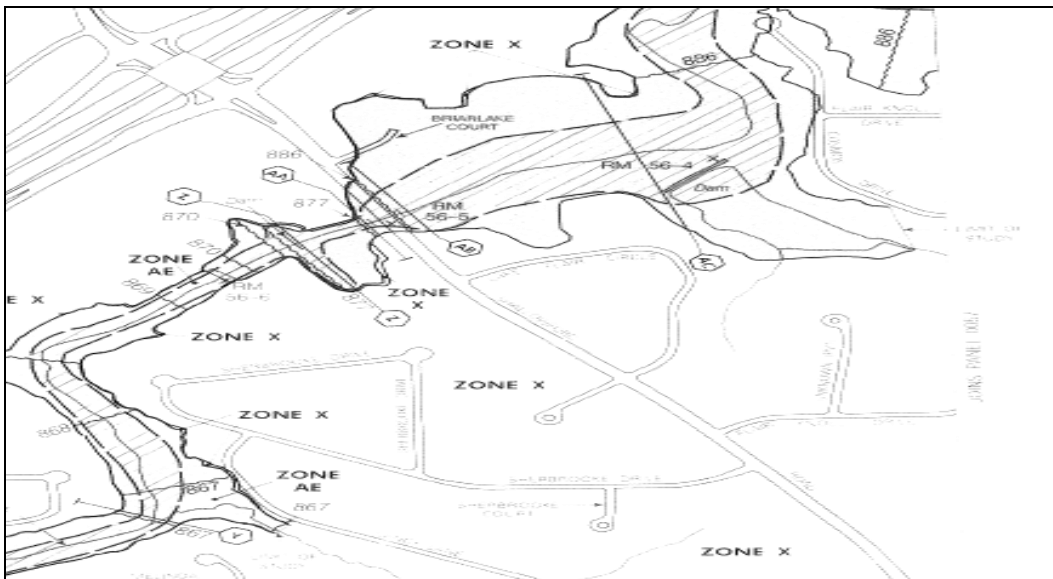
If action is not taken soon, long-term problems will result. However if action is taken soon, successful programs such as public education and involvement, a set of clear procedures and goals (objectives) will be set; there will be the establishment of a focused authority, directed by one department; strong technical guidance and established procedures that will guide the development. All this plus a comprehensive maintenance plan for the entire Corridor's stormwater, focused on the environment that incorporates sustainability and Green concepts.

Appendix MAPS

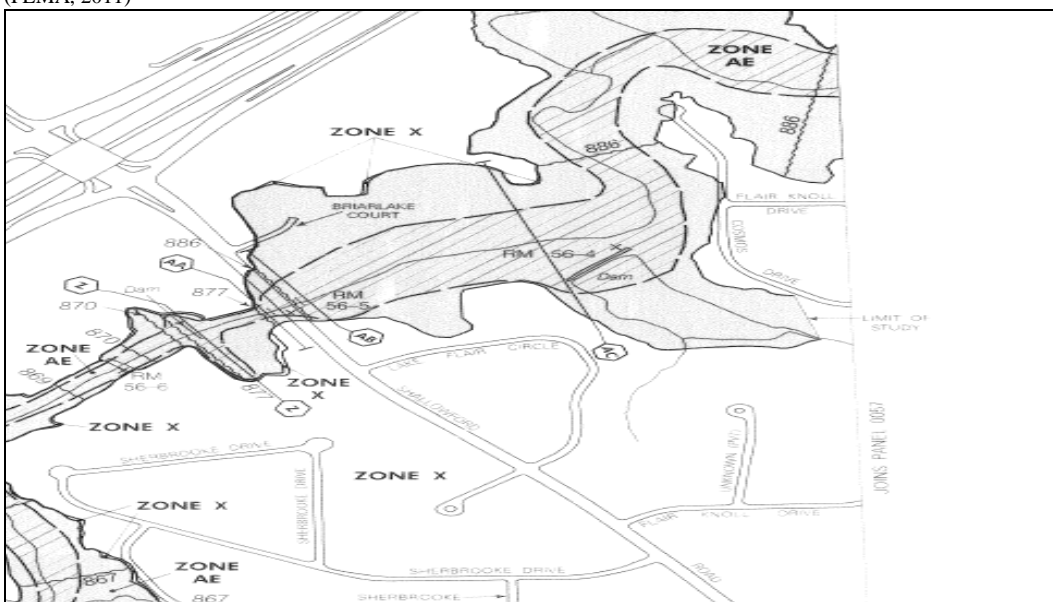


(Images, 2012)

FEMA Floodmap 2001



(FEMA, 2011)



2001 FEMA North Fork Peachtree Creek Floodzone Map (FEMA, 2001)

APPENDIX B - Documentation

December 14, 2010

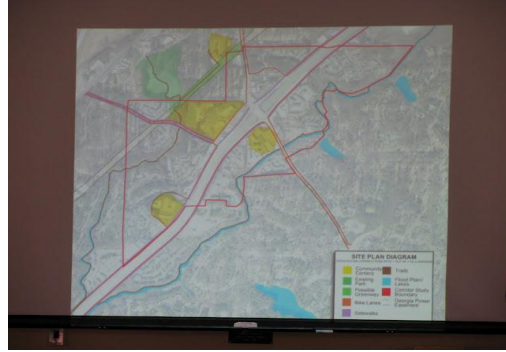
Commissioner Rader:

I hope I have heard correctly that DeKalb County is writing an LCI grant application for the purposes of studying whether a CID (Community Improvement District) along I-85 in DeKalb County would be feasible, its best boundaries, potential budget, potential structure, and potential project interests. I certainly support such a grant application. Time constraints make it impossible for me to speak for the North Briarcliff Civic Association as a whole at this moment.

As you know, I was a co-chair of the series of public meetings held during spring/summer 2010 to examine how well the Shallowford interchange area (Neighborhood Activity Center) was serving the surrounding communities and to begin goal-setting for future redevelopment. As discovered during that process, there are approximately 20,000 homes and 4,700 apartments within a one mile radius of the Shallowford interchange. I have let other civic associations along DeKalb's I-85 corridor know about this potential study; some civic association board members from both the Clairmont and Chamblee-Tucker interchange areas have expressed interest.

Beth Nathan

APPENDIX C – Pictures



Re-Imaging Shallowford – June 2010 DeKalb County Planning with North Briarcliff Civic Association

Kudzu at the 3rd wetland

Heavy 3 day rain



Erosion along the banks of Northfork; heavy rains in April 2011



Cleanup 1st week in October BoyScouts and 2nd week GT Environmental Engineer students

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This report is the culmination of a concerted effort by dedicated personnel of the U.S. Geological Survey who collected, compiled, analyzed, verified, and organized the data, and who typed, edited, and assembled the report. In addition to the authors who had primary responsibility for assuring that the information contained herein is accurate, complete, and adheres to Geological Survey policy and

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